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Fischer 344 Rats

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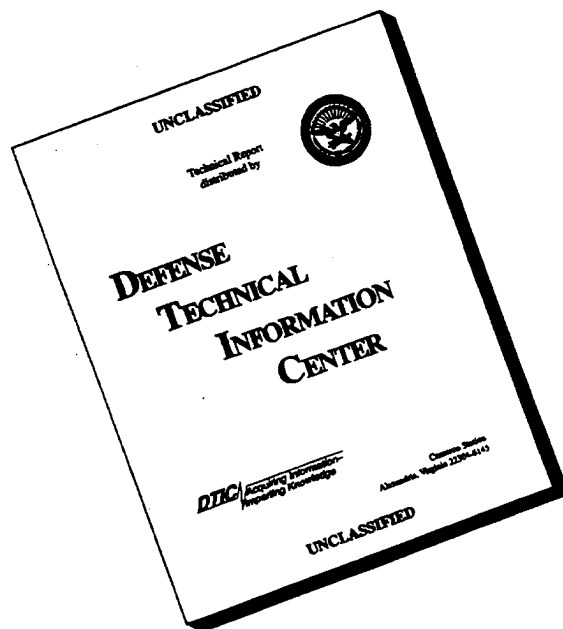
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13. ABSTRACT Chronic toxic effects of 1,3,5-trinitrobenzene (TNB) in male and female Fischer rats were evaluated by feeding certified powdered laboratory chow diet supplemented with varied concentrations of TNB (0, 5, 60 and 300 mg/kg diet). The study was designed to accommodate three interim sacrifices (10 rats/group/sex) at 90, 180 and 365 days. The final sacrifice was performed after two years. All data related to these interim sacrifices are presented independently in appendices J to L. The calculated average TNB consumption for females was 0.23, 2.68 and 13.31 mg/kg/day and was 0.22, 2.64 and 13.44 mg/kg/day for males. Terminal body weights were significantly decreased in both sexes in the 300 mg/kg group. Relative spleen weights were decreased in both sexes in the 300 mg/kg group while brain weights were increased in females in this same group. Methemoglobin was increased in both sexes in the 300 mg/kg group while other hematological effects noted at the interim sacrifice times were not evident at two years. Histopathological examinations suggested treatment related changes in both sexes involving the kidneys (cytoplasmic/hyaline droplets) in the 60 and 300 mg/kg groups and the spleen (erythroid cell hyperplasia and pigment deposition) in the 300 mg/kg group. The cytoplasmic/hyaline droplets were characterized by immunohistochemistry as alpha-2μ-globulin. These renal droplets were also noted at the interim sacrifice times. A no observed adverse effect level (NOAEL) was established in this study at 2.68 mg/kg b.w./day for F-344 rats administered TNB for two years.					
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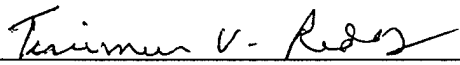
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Tirumuru V. Reddy, Ph.D. 2/29/96  
PI - Signature Date



## Compliance Statement

This study was conducted in compliance with the Good Laboratory Practice Regulations as set forth in Title 21 of the U.S. Code of Federal Regulations Part 792 issued August 17, 1989. All deviations from the protocol and/or GLPs are listed in Appendix J. There were no deviations from the aforementioned regulations which affected the quality or integrity of the study or the interpretation of the results in the report.



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Tirumuru V. Reddy, Ph.D.  
U.S. Environmental Protection Agency

9-8-96

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Date

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## **Study Timetable:**

Study Initiation: August 17, 1993

Initiation of Dosing: August 30, 1993

Necropsy: August 25-30, 1995

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## INTRODUCTION

Nitroaromatics, such as 1,3-dinitrobenzene (DNB), 1,3,5-trinitrobenzene (TNB), and N-methyl-N,2,4,6-tetranitroaniline (tetryl), have been detected as environmental contaminants of groundwater and soil near production sites and in some instances at military test grounds. TNB is formed as a by-product during 2,4,6-trinitrotoluene (TNT) production and can be formed through photochemical oxidative degradation of TNT manufacturing (Burlinson, 1980; Spanggord et al., 1982). TNB is not easily biodegradable, persists in the environment, eventually leaches out, and contaminates groundwater near waste disposal sites (Garman et al., 1987). Exposure to TNB can occur through contact with wastewaters and soil at the original production sites and other plants devoted to munitions assembly which contain large quantities of these nitroaromatic compounds (Walsh and Jenkins, 1992).

Toxicity data on these compounds are limited. The oral LD<sub>50</sub> of DNB, TNB and tetryl were 59 mg/kg, 284 mg/kg and greater than 5 g/kg, respectively, in rats for combined sexes. TNB and tetryl were not toxic at 2 g/kg when applied to rabbit skin for 24 hours. However, the dermal LD<sub>50</sub> of DNB was 1.99 g/kg for combined sexes of rabbits. None of these compounds produced skin irritation but positive (DNB) and severe (TNB, tetryl) eye irritation potentials in rabbits were noted. The sensitization tests showed that DNB and tetryl are not skin sensitizers while TNB caused a mild allergic reaction in guinea pigs (Fitzgerald et al., 1992 a,b,c). Some of the toxicological effects of TNB are: formation of methemoglobin, testicular degeneration and reproductive failure, weight loss and anemia, in hamsters, rats and mice. Neurological and hematological disorders have also been reported in dogs. DNB is toxic to humans; the estimated lethal dose range is 5-50 mg/kg and is readily absorbed through the skin (Von Burg, 1989). Tetryl was observed to be a powerful skin sensitizer in ammunition plant workers, with dermatitis, liver atrophy, spleen effects, headaches, weight loss and respiratory irritation reported following exposure (U.S. EPA, 1990). Atmospheric concentration of 1.5 mg/m<sup>3</sup> or below did not produce systemic poisoning in persons working with tetryl. DNB, TNB and tetryl have been shown to be genotoxic in the *Salmonella* mutagenesis assay (McGregor et al., 1989) while TNB and DNB have been shown to form adducts with blood proteins and tissue DNA in rats (Reddy et. al.; 1991, 1995).

### Objective of the Study

This study was conducted in order to evaluate the toxicity of 1,3,5-trinitrobenzene when administered in the diet for a two year period.

## MATERIALS AND METHODS

### Test Material Preparation

1,3,5-trinitrobenzene powder (CAS #99-35-4; 99.67% pure) was supplied by the U.S. Army Biomedical Research and Development Laboratory. Analysis by HPLC revealed no detectable impurities. Certified powdered Purina Laboratory Chow 5002 was purchased (Ralston-Purina Co., St. Louis, MO) and stored at 4°C until used. First, 0.3 g of TNB was added to 50 g of powdered diet in a mortar and thoroughly ground with a pestle. Afterwards 250 g of the diet was added and mixed for 15 minutes followed by 350 g and mixed for an additional 15 minutes. Finally, the remaining diet (350 g) was added and mixed for 30 minutes in a mechanical mixer (Kitchen Aid, St. Joseph, MI) for uniform distribution of TNB in the diet. This was verified by determining the TNB concentration in the diet, taken from each of the 1 kg mixtures, by quantitative analysis done by HPLC. The premixed diet (0.3 g/kg) was further diluted with fresh powdered diet to obtain the desired TNB concentration in the lower dose groups. The diet feeders were changed twice a week.

Analyses of the TNB-feed mixtures were carried out on acetone extracts of the mixtures, utilizing a Waters 600E chromatography system (Waters, Milford, MA), equipped with a 490E programmable multiwavelength detector, operating at 245 nm. The entire chromatography system was interfaced with a Berthold HPLC computer program, Version 1.65 (Berthold, Nashua, NH). The TNB was eluted from a Zorbax C-8 column (9.4 mm x 25 cm) (MAC-DOD Analytical, Chadds Ford, PA) with a water-methanol gradient, at a flow rate of 3 ml/min. Working standards were prepared in Burdick and Jackson HPLC grade high purity methanol (Baxter, Oletz, OH).

### Animals and Maintenance

Male and female Fischer 344 rats, confirmed free of viral antibodies, bacteria and parasites, were obtained from Charles River Laboratories, Kingston, New York. The animals, 7-8 weeks old and weighing approximately 140-175 g when delivered, were held for 1 week in quarantine prior to initiation of treatment. The animals were housed in a temperature (22-23°C) and humidity (40-60%) controlled room on a 12:12 hour light:dark cycle. For the study, they were housed individually in polycarbonate cages and water was administered ad libitum. Animal identification was done using electronic implants (Bio Medic, Maywood, NJ) with the rats assigned to control and treatment groups according to a computer-generated set of random numbers. The weight variation of the animals of each sex used did not exceed  $\pm 2$  s.d. of the mean weight at the time of delivery. The cages were identified with a color-coded identification card indicating the animal and treatment group. All aspects of the study were conducted in compliance with the guidelines of the American Association for Accreditation of Laboratory Animal Care.

All rats were observed daily for physiological and behavioral responses as well as for mortality or morbidity. Food and water consumption were recorded twice weekly. Body weights were taken prior to the start of the study, once weekly during the study and at the final sacrifice.

### Experiment Groups

Group	Sex	mg TNB/kg diet
1	F	300
2	F	60
3	F	5
4	F	0
5	M	300
6	M	60
7	M	5
8	M	0

### Hematology and Clinical Chemistry

Hematology parameters were assessed using a Serono-Baker Hematology Analyzer, Model 9000 (Serono-Baker, Allentown, PA). Total red and white blood cell counts, platelet count, differential leukocyte count, hemoglobin, packed cell volume, reticulocytes, MCV, MCH, MCHC and Heinz bodies were measured and computed. Methemoglobin samples were analyzed on a IL 482 Co-Oximeter.

Clinical chemistry was performed using a COBAS Fara II centrifugal analyzer (Roche, Nutley, NJ) with a non-selective electrode module. Clinical chemistry analytes included sodium, potassium, total protein, albumin, calcium, phosphorus, total bilirubin, blood urea nitrogen, creatinine, alanine aminotransferase, triglycerides, cholesterol, aspartate aminotransferase, glucose and alkaline phosphatase.

### Statistical Evaluation

Males and females were considered separately in all statistical analyses. A one-factor (dose) analysis of variance (ANOVA) was used to analyze normally distributed measures: body weights, organ weights, organ weight ratios, food and water consumption, hematology and clinical chemistry. When a treatment effect was noted ( $p \leq 0.05$ , F-test) the difference between the control and the treatment groups was probed using a multiple comparison procedure (Dunnett's or Tukey's test). Due to the high variability of some of the measures, a nonparametric analysis of variance, the Wilcoxon Rank Sum Test, was used where appropriate.

### Necropsy and Histopathology

Necropsies were performed on all animals including those found dead unless, they were excessively autolyzed or cannibalized. Thus, the number of animals from which particular organs or tissues were examined microscopically varies and is not necessarily equal to the number of animals that were placed on study in each group. Prior to necropsy, the animals were anesthetized with pentobarbital (60 mg/kg b.w., i. p.) and blood samples were collected via cardiac puncture after the body weight was recorded. Following euthanasia via exsanguination, all external surfaces, orifices, all organs, and the thoracic, abdominal and pelvic cavities were examined for gross lesions.

During necropsy the following tissues were weighed: brain, liver, spleen, kidneys, adrenals, lungs, thymus, testes w/epididymides, ovaries, and heart.

The following tissues were harvested from each animal and preserved in 10% neutral buffered formalin:

skin	colon	esophagus
mandibular and	cecum	stomach
mesenteric lymph nodes	rectum	duodenum
mammary glands	liver	jejunum
thigh muscle	pancreas	tongue
sciatic nerve	spleen	salivary gland
sternum	kidneys	ileum
femur with marrow	adrenals	nasal cavity with turbinates
thymus	urinary bladder	brain
trachea	seminal vesicles	pituitary
lungs with bronchi	prostate	preputial or clitoral glands
heart and aorta	uterus	Zymbal's gland
thyroid	ovaries	spinal cord
parathyroids	testes, with epididymides	

Subsequently, these tissues were trimmed, processed and embedded in paraffin. Blocks were sectioned at 5 $\mu$  and slides were prepared and stained with hematoxylin and eosin. Selected kidney slides were also stained for alpha-2 $\mu$ -globulin using immunohistochemical techniques. A monoclonal antibody for alpha-2 $\mu$ -globulin was a gift from the Chemical Industry Institute of Toxicology (CIIT). The primary antibody was diluted 1:200. A protease digestion and normal horse serum block were applied and an anti-mouse secondary antibody was used. The chromagen used to visualize the reaction product was diaminobenzidine and the slides were counterstained with hematoxylin (Prophet, et al., 1992). All tissues were examined in the high dose and control groups of both sexes. The spleen, kidneys, lungs and liver were examined in the remaining groups.

Inflammatory and degenerative lesions were graded according to severity using a scale of one to four (minimal, mild, moderate or marked). Data were tabulated according to individual animal and summarized by group. In addition, the gross observations and microscopic diagnoses were correlated for each animal. Labcat histopathology software was used for data management. All tissue specimens, blocks and slides, raw data and final report will be placed in the U.S. EPA storage facility.

## **RESULTS**

### **Food and Water Consumption**

Overall food and water consumption data are listed in Table 1. The food consumption data show no significant differences amongst the female groups while the 60 and 300 mg/kg male groups were significantly decreased ( $p \leq 0.05$ ). Water consumption was significantly increased ( $p \leq 0.05$ ) in the 300 mg/kg group of both sexes.

Using the food consumption data, the average daily dose levels of TNB received by group is presented in Table 2.

#### Body Weights, Organ Weights and Weight Ratios

Organ weights (heart, brain, spleen, adrenals, thymus, ovaries/testes, kidneys, lungs and liver) are given in Table 3. Mean group values for organ to body weight ratios and terminal body weights are present in Table 4.

Significant decreases ( $p \leq 0.05$ ) from control terminal body weights were noted in both sexes in the 300 mg/kg group. The remaining groups did not display any change.

Absolute organ weights were significantly decreased ( $p \leq 0.05$ ) from controls in the 300 mg/kg dose group for the following: females- kidneys, lungs and thymus; males - liver, heart and spleen.

Organ weights as a percent of the total body weight were significantly ( $p \leq 0.05$ ) different from controls for the following organs:

Brain - The 300 mg/kg dose female group had an increased value.

Spleen - The 300 mg/kg group of both sexes had a decreased value.

#### Hematology

Hematology analyses performed were total white blood cell count (WBC), platelet count, red blood count (RBC), methemoglobin, hemoglobin, hematocrit, reticulocytes, Heinz bodies, MCV, MCH, MCHC and differential leukocyte count. Group data are summarized in Tables 5 and 6.

No significant ( $p \leq 0.05$ ) differences were noted between the treated groups and the control group in either sex for any of the parameters tested except for the following:

- a) MCH was decreased in the 300 mg/kg group of both sexes and the 60 mg/kg female group.
- b) Platelets were increased in the 300 mg/kg female group.
- c) MCV was decreased in the 300 mg/kg male group.
- d) Methemoglobin was increased in the 300 mg/kg group of both sexes.

#### Clinical Chemistry

The following analytes were evaluated: glucose, BUN, creatinine, alkaline phosphatase, total protein, albumin, calcium, total bilirubin, aspartate aminotransferase, alanine aminotransferase, sodium, potassium, phosphorus, cholesterol and triglycerides. The mean group values for each analyte are compiled in Tables 7 and 8.



There were no clinical chemistry parameters in treated groups which were significantly ( $p \leq 0.05$ ) different from the control group except for the following:

- a) BUN, creatinine and calcium were increased in the 300 mg/kg female group.
- b) Total bilirubin was decreased in the 300 mg/kg male group.
- c) AST was decreased in the 5 mg/kg female group.

#### Clinical Observations (Appendix F)

There were no treatment related clinical observations. Nearly all observations noted during the study would be considered spontaneous age related changes. Monitoring for subclinical infections was done every six months during the study via serological profiles of sentinel animals. No significant titers were noted.

#### Ophthalmology Findings (Appendix G)

All animals used in this study were affected with mild corneal dystrophy prior to the initiation of the study and when examined at the termination of the study were affected with ocular abnormalities. In those animals affected with a cataract graded as severe, no posterior segment was visible. It is typical for a significant portion of rats of this age (2 years old) to be affected with cataracts as was apparent in this study. Also, cataracts will result in iritis through lens-induced-uveitis, an immune response to lens protein antigen. Iritis may also result in the ocular discharge observed in some of the rats.

Corneal dystrophy was a common finding in both sexes. It was present prior to study initiation and as expected had progressed in many animals. In some, it had resulted in keratitis and also likely accounts for the red ocular discharge observed. It would appear that all lesions in this study were distributed well and that a treatment-related ophthalmic effect was not observed.

#### Survival

The main causes for early deaths were mononuclear cell leukemia (MCL) and pituitary tumors for both sexes. In addition, animals with abscessed skin lesions were euthanized before the terminal sacrifice for humane reasons. The survival rate is as follows:

<u>Dose Group</u>	<u>Females</u>	<u>Males</u>
300 mg/kg	70/75	66/75
60 mg/kg	64/75	59/75
5 mg/kg	60/75	50/75
0 mg/kg	49/60	49/60

Survival amongst the treated groups was not significantly different from that of the controls except for the low dose males. This disparity was not deemed treatment related but considered a spurious finding.

## Gross Pathology (Appendix H)

Gross pathological findings were distributed in a non-treatment related manner and can be attributed to aging in nearly all instances.

## Histopathology (Appendix H)

All tissues were histopathologically examined in control and high dose animals of both sexes while the spleen, liver, lungs and kidneys were examined in the remainder of the groups along with all gross lesions.

Incidence levels of diagnosed neoplasms in all dose groups in this study did not exceed National Toxicology Program values noted in untreated control F-344 rats compiled from numerous studies (Haseman, et al., 1985).

Chronic progressive nephropathy (CPN), a spontaneous renal disease of the F-344 rat, was prominent in all groups (treated and control) with an increased severity noted in males. This progressive disease was characterized by renal tubules having an increased number of cells with more intense basophilic staining of the cytoplasm and nucleus while basement membranes in glomeruli and around tubules were thickened. Some dilated tubules with thickened basement membranes had multiple layers of regenerative epithelium while others had flattened atrophic epithelium. In addition, interstitial fibrosis and inflammatory infiltrates were prominent and protein casts filled dilated tubules. Glomeruli displayed increased mesangial proliferation with adhesions between the glomerular tuft and capsular wall and around the glomerulus. Some glomerular lesions demonstrated increased size and number of parietal cells of Bowman's capsule, dilated Bowman's space and small sclerotic glomerular tufts. Mineralization of basement membranes of interalveolar septa and intima of small blood vessels was evident in many animals and is usually linked to this chronic renal disease.

The other renal change which was significant in both sexes was the increased incidence of cortical tubular cytoplasmic/hyaline droplets in the 60 and 300 mg/kg dose groups. Some of these droplets were large and irregularly shaped but were more often spheroid and stained positive with Mallory's Heidenhain protein stain. A light cytoplasmic staining pattern was noted in the proximal tubular epithelium of both sexes using the immunohistochemical staining procedure for alpha-2 $\mu$ -globulin. This staining was diffuse and did not appear to be associated with droplets. Positive staining for alpha-2 $\mu$ -globulin was observed in some of the droplets located in the proximal tubular epithelium in both sexes in the 60 and 300 mg/kg groups. However, not all of the droplets stained positive for alpha-2 $\mu$ -globulin. A diagnosis alpha-2 $\mu$ -globulin nephropathy was not deemed appropriate since there was no significant increase in tubular cell necrosis, no presence of granular casts or linear papillary mineralization or increased tubular hyperplasia. Renal pigmentation (lipofuscin and/or hemosiderin) was evident in both the cytoplasm of renal tubules and interstitial areas in all groups with it being most striking in high dose animals.

Hyperplasia of hematopoietic cells, predominantly erythroid, was commonly observed in the spleen along with increased pigment (hemosiderin) deposition

within macrophages. Only the high dose group of both sexes had an increased incidence and severity when compared to controls. This same type of erythroid response was also noted in the femoral bone marrow in some high dose females. Increased serum concentrations of methemoglobin noted in the high dose animals was probably due to the increased production of the transformation product of oxyhemoglobin under the influence of TNB oxidation and is the probable initiating cause of the hematopoietic activity. Methemoglobin is derived from hemoglobin by conversion of iron from ferrous to the ferric valence; it is then incapable of transporting oxygen.

Hepatocellular necrosis, bile duct hyperplasia and peribiliary fibrosis occur spontaneously in aging rats and were frequently noted in this study. The latter was characterized by increased collagen around bile ducts; the trapped biliary epithelium showed both proliferative and degenerative changes. In addition, chronic inflammatory changes and infiltrates were also apparent. Various spontaneous hepatic foci of cellular alteration were evident in both sexes and in all groups at about the same incidence levels. However, females had a predominance of basophilic foci while eosinophilic foci were more prominent in males.

Mononuclear cell leukemia is one of the most common neoplasms of F-344 rats and can have an incidence level from 15-35% in untreated controls as was noted in this study except for the moderate incidence decrease in the 300 mg/kg group of both sexes. The most consistent histologic finding was a severely congested spleen with a diffuse infiltration of the sinusoids by a sheet of neoplastic mononuclear cells. The liver in these animals consistently had mononuclear cells within hepatic sinusoids with necrosis of individual hepatocytes and hypertrophy of other hepatocytes. Hemorrhage and necrosis involving the brain was also noted and can be directly related to massive infiltrates of MCL cells.

Degenerative myocardial disease was present at a high incidence level in both controls and high dose animals, which is not unusual in F-344 rats, with the severity being mildly increased in males. The etiology of this change is unknown but appeared as coagulative necrosis of myocardial fibers, which were deeply eosinophilic and hyalinized with pyknotic nuclei. Inflammatory cellular infiltrates were usually present along with fibrosis and mineralization.

Neoplasms of the pars distalis were obvious in all groups of both sexes at nearly the same frequency. These lesions are reported to be the second or third most common neoplasm in the laboratory rat and pituitary adenomas may have an incidence of 20-40% in F-344 rats. The precise cause of spontaneous neoplasms of the pars distalis is unknown but may be related to endocrine imbalances associated with aging.

Ductal and alveolar mammary gland dilatation was well demonstrated in many animals and is considered to be within the spectrum of normal age-related non-neoplastic changes. The term galactoceles was used for markedly dilated ducts, which were occasionally noted. Fibroadenomas are a common benign spontaneous neoplasm of the mammary gland of the F-344 rat. The incidence level can range up to 30% as was demonstrated in this study. Endometrial stromal polyps were common in all female groups and appeared solitary or multiple. These benign

growths can have an incidence of up to 37% in control groups in two year studies. Ovarian cysts of various types were also obvious and are a common finding in aging female F-344 rats.

The incidence of testicular interstitial cell adenomas was nearly 100%, which is what normally can be expected in two year studies involving F-344 male rats. Atrophy and degeneration of adjacent seminiferous tubules was apparent in all groups as a result of these large compressing benign neoplasms.

The remaining diagnoses as listed in the tables should be considered spontaneous age related changes in two year old F-344 rats.

### **CONCLUSIONS**

Administration of 1,3,5-trinitrobenzene to Fischer 344 rats in the diet at dose levels of 5, 60 and 300 mg/kg for two years resulted in the following biologically significant findings:

1. There was no evidence of carcinogenicity in F-344 rats receiving 5, 60 or 300 mg/kg 1,3,5-trinitrobenzene in their diet in comparison to concurrent and historical controls.
2. Terminal body weights were significantly reduced in both sexes administered 300 mg/kg diet.
3. Increased splenic erythroid cell hyperplasia and pigment deposition along with elevated methemoglobin levels were present in both sexes administered 300 mg/kg diet. The regenerative anemia previously noted in the interim sacrifices appeared to be nearly fully compensated.
4. Cytoplasmic/hyaline renal tubular protein droplets were excessive in both sexes administered 60 and 300 mg/kg diet. BUN and creatinine levels were minimally increased in the female 300 mg/kg dose group while water consumption was increased in both sexes in this same group. Since there were no adverse renal effects caused by the droplets in the 60 mg/kg diet, they were not considered biologically significant in that group.
5. A no adverse effect level of 2.68 mg/kg b.w./day was established for 1,3,5-trinitrobenzene.

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Table 1: Food and Water Consumption

Dose (mg TNB/kg diet)	Food (g/kg b.w./day)	Water (g/kg b.w./day)
Females		
300	44.23 ± 1.16	104.47 ± 2.07 *
60	44.99 ± 1.33	91.34 ± 2.00
5	46.98 ± 1.33	85.79 ± 1.83
0	47.99 ± 1.74	84.09 ± 2.09
Males		
300	44.64 ± 0.33 *	71.43 ± 0.86 *
60	44.28 ± 0.27 *	62.13 ± 0.67
5	45.13 ± 0.24	60.65 ± 0.65
0	46.09 ± 0.34	60.38 ± 0.78

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Tukey's test.

Table 2: Calculated Daily TNB Consumption

Dose (mg TNB/kg diet)	Calculated Dose (mg TNB/kg b.w.)
Females	
300	13.31 ± 0.35
60	2.68 ± 0.08
5	0.23 ± 0.01
Males	
300	13.44 ± 0.10
60	2.64 ± 0.02
5	0.22 ± 0.00

Mean ± Standard Error

Table 3: Organ Weights (grams)

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Females				
Kidneys	1.70±0.03 *	1.81±0.04	1.91±0.03	1.90±0.05
Lung	1.24±0.02 *	1.40±0.06	1.51±0.06	1.54±0.12
Liver	7.37±0.27	7.72±0.31	8.01±0.20	7.78±0.36
Heart	0.84±0.01	0.91±0.03	0.93±0.02	0.91±0.03
Brain	1.79±0.02	1.80±0.02	1.83±0.01	1.83±0.02
Spleen	0.86±0.13	2.12±0.57	2.10±0.41	1.56±0.48
Adrenals	0.08±0.00	0.08±0.00	0.09±0.01	0.08±0.00
Thymus	0.17±0.01 *	0.22±0.02	0.23±0.02	0.26±0.02
Ovaries	0.14±0.01	0.21±0.07	0.23±0.07	0.13±0.01
Males				
Kidneys	2.58±0.06	3.01±0.09	2.92±0.07	2.76±0.06
Lung	1.78±0.04	1.98±0.08	2.31±0.17	2.09±0.11
Liver	9.91±0.31 *	12.05±0.27	11.96±0.54	12.02±0.59
Heart	1.11±0.02 *	1.22±0.02	1.22±0.04	1.22±0.04
Brain	1.96±0.03	2.01±0.02	1.94±0.02	1.97±0.03
Spleen	0.96±0.06 *	1.59±0.27	3.13±0.71	2.66±0.62
Adrenals	0.08±0.00	0.09±0.01	0.09±0.00	0.09±0.00
Thymus	0.27±0.03	0.30±0.02	0.29±0.03	0.28±0.03
Testes	5.81±0.48	5.80±0.39	5.35±0.42	5.16±0.42

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 4: Organ-to-Body Weight Ratios

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Females				
Body Weight(g)	215.57±3.19 *	241.74±6.10	256.73±6.93	256.83±8.23
Kidneys (%)	0.79±0.02	0.77±0.02	0.76±0.02	0.75±0.02
Lung (%)	0.58±0.01	0.61±0.04	0.63±0.04	0.64±0.07
Liver (%)	3.43±0.12	3.28±0.18	3.22±0.12	3.06±0.12
Heart (%)	0.39±0.01	0.38±0.01	0.37±0.01	0.36±0.01
Brain (%)	0.84±0.01 *	0.76±0.02	0.74±0.02	0.74±0.03
Spleen (%)	0.41±0.06 **	1.02±0.31	0.94±0.20	0.71±0.25
Adrenals (%)	0.04±0.00	0.03±0.00	0.04±0.00	0.03±0.00
Thymus (%)	0.08±0.01	0.09±0.01	0.09±0.01	0.10±0.01
Ovaries (%)	0.06±0.00	0.08±0.02	0.08±0.02	0.05±0.00
Males				
Body Weight(g)	319.86±8.90 **	353.79±6.38	342.11±14.43	342.83±11.8
Kidneys (%)	0.82±0.02	0.85±0.03	0.89±0.03	0.82±0.03
Lung (%)	0.56±0.02	0.56±0.02	0.72±0.06	0.64±0.05
Liver (%)	3.14±0.06	3.42±0.09	3.59±0.17	3.55±0.20
Heart (%)	0.35±0.01	0.35±0.01	0.37±0.02	0.36±0.01
Brain (%)	0.63±0.02	0.58±0.01	0.60±0.02	0.59±0.02
Spleen (%)	0.30±0.02 **	0.44±0.08	1.00±0.25	0.84±0.22
Adrenals (%)	0.03±0.00	0.02±0.00	0.03±0.00	0.03±0.00
Thymus (%)	0.08±0.01	0.09±0.01	0.09±0.01	0.08±0.01
Testes (%)	1.80±0.13	1.64±0.10	1.52±0.09	1.49±0.10

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.\*\* Significantly different from the control group ( $p \leq 0.05$ ) by Wilcoxon Rank Sum Nonparametric test.



Table 5: Hematology Values/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
RBC ( $\times 10^6/\mu\text{l}$ )	7.26 $\pm 0.49$	7.95 $\pm 0.16$	7.71 $\pm 0.46$	6.97 $\pm 2.05$
Hemoglobin (g/dl)	13.34 $\pm 0.74$	14.70 $\pm 0.45$	14.59 $\pm 1.02$	13.44 $\pm 3.53$
Hematocrit (%)	41.07 $\pm 1.98$	44.42 $\pm 0.93$	44.26 $\pm 1.43$	40.31 $\pm 10.71$
WBC ( $\times 10^3/\mu\text{l}$ )	3.10 $\pm 0.86$	2.26 $\pm 0.38$	2.78 $\pm 2.10$	2.70 $\pm 1.13$
Platelets ( $\times 10^3/\mu\text{l}$ )	686.20 * $\pm 65.05$	619.89 $\pm 44.25$	583.33 $\pm 51.75$	599.78 $\pm 52.65$
Neutrophils (%)	44.75 $\pm 10.36$	54.84 $\pm 12.34$	50.95 $\pm 10.96$	47.78 $\pm 11.59$
Lymphocytes (%)	47.15 $\pm 10.27$	38.61 $\pm 11.44$	41.26 $\pm 9.90$	45.20 $\pm 12.26$
Heinz Bodies (%)	0.00 $\pm 0.00$	0.00 $\pm 0.00$	0.00 $\pm 0.00$	0.00 $\pm 0.00$
MCV (cumicr)	56.66 $\pm 1.74$	55.83 $\pm 0.29$	57.49 $\pm 2.29$	59.28 $\pm 5.44$
MCH (picogm)	18.40 * $\pm 0.58$	18.48 * $\pm 0.33$	18.92 $\pm 0.59$	19.87 $\pm 2.07$
MCHC (g/dl)	32.47 $\pm 0.63$	33.09 $\pm 0.60$	32.94 $\pm 1.41$	33.47 $\pm 0.70$
Reticulocytes (%)	3.76 $\pm 0.82$	2.93 $\pm 0.27$	3.83 $\pm 2.34$	3.22 $\pm 0.99$
MetHb (%)	2.49 * $\pm 0.65$	1.16 $\pm 0.28$	0.87 $\pm 0.29$	1.00 $\pm 0.63$

Mean  $\pm$  Standard Deviation\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 6: Hematology Values/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
RBC ( $\times 10^6/\mu\text{l}$ )	8.25 $\pm 0.81$	8.06 $\pm 1.06$	7.45 $\pm 1.27$	7.52 $\pm 1.64$
Hemoglobin (g/dl)	13.84 $\pm 0.84$	14.16 $\pm 1.58$	13.63 $\pm 1.63$	13.96 $\pm 2.12$
Hematocrit (%)	43.36 $\pm 2.08$	43.91 $\pm 5.11$	42.15 $\pm 4.27$	43.16 $\pm 6.26$
WBC ( $\times 10^3/\mu\text{l}$ )	4.30 $\pm 0.89$	3.90 $\pm 1.04$	9.64 $\pm 20.25$	3.29 $\pm 0.78$
Platelets ( $\times 10^3/\mu\text{L}$ )	788.10 $\pm 89.28$	745.30 $\pm 127.1$	767.60 $\pm 141.1$	674.00 $\pm 112.0$
Neutrophils (%)	51.26 $\pm 9.52$	52.98 $\pm 9.74$	50.32 $\pm 14.93$	52.27 $\pm 11.46$
Lymphocytes (%)	42.39 $\pm 8.30$	39.87 $\pm 8.83$	41.72 $\pm 11.61$	40.28 $\pm 9.98$
Heinz Bodies (%)	0.00 $\pm 0.00$	0.00 $\pm 0.00$	0.00 $\pm 0.00$	0.00 $\pm 0.00$
MCV (cumicr)	53.14 * $\pm 3.42$	54.61 $\pm 1.89$	57.49 $\pm 6.14$	58.63 $\pm 6.75$
MCH (picogm)	16.84 * $\pm 1.01$	17.60 $\pm 0.63$	18.54 $\pm 1.73$	18.93 $\pm 2.00$
MCHC (g/dl)	31.68 $\pm 0.48$	32.27 $\pm 0.50$	32.26 $\pm 0.72$	32.30 $\pm 0.56$
Reticulocytes (%)	4.36 $\pm 1.19$	4.46 $\pm 1.25$	6.09 $\pm 3.85$	6.92 $\pm 5.91$
MetHb (%)	1.92 * $\pm 0.55$	1.10 $\pm 0.44$	0.57 $\pm 0.41$	0.66 $\pm 0.30$

Mean  $\pm$  Standard Deviation\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 7: Clinical Chemistry Values/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Glucose (mg/dl)	111.10 ± 20.63	112.11 ± 16.55	107.70 ± 15.64	103.11 ± 20.58
BUN (mg/dl)	22.60 ± 2.76*	18.89 ± 1.62	17.90 ± 3.31	17.00 ± 1.87
Creatinine (mg/dl)	0.62 ± 0.06*	0.52 ± 0.04	0.52 ± 0.04	0.54 ± 0.05
ALK Phos. (U/L)	64.00 ± 15.43	57.44 ± 12.09	67.80 ± 31.02	69.44 ± 29.17
AST (U/L)	124.30 ± 22.45	113.33 ± 14.91	112.00 ± 32.48*	151.67 ± 56.25
ALT (U/L)	53.50 ± 10.47	49.67 ± 7.04	51.80 ± 24.20	60.22 ± 20.31
Potassium (mmol/L)	4.21 ± 0.32	4.09 ± 0.37	3.97 ± 0.24	4.24 ± 0.37
Albumin (g/dl)	4.87 ± 0.38	4.66 ± 0.42	4.59 ± 0.37	4.53 ± 0.50
Calcium (mg/dl)	10.76 ± 0.40*	10.50 ± 0.27	10.54 ± 0.20	10.34 ± 0.37
Sodium (mmol/dl)	140.80 ± 1.55	141.11 ± 0.93	140.60 ± 0.84	140.11 ± 1.05
Total Bilirubin (mg/dl)	0.12 ± 0.04	0.11 ± 0.03	0.16 ± 0.11	0.11 ± 0.03
Total Protein (g/dl)	7.19 ± 0.61	6.96 ± 0.30	6.87 ± 0.28	6.89 ± 0.39
Cholesterol (mg/dl)	175.30 ± 43.69	146.33 ± 14.81	149.10 ± 45.96	148.67 ± 21.47
Phosphorus (mg/dl)	6.99 ± 0.90	5.67 ± 0.53	6.34 ± 0.79	6.37 ± 0.78
Triglyceride (mg/dl)	120.90 ± 77.07	140.78 ± 96.08	133.80 ± 67.80	139.44 ± 47.61

Mean ± Standard Deviation

\*Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 8: Clinical Chemistry Values/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Glucose (mg/dl)	103.60 ± 25.54	114.80 ± 11.65	96.70 ± 21.81	111.50 ± 21.07
BUN (mg/dl)	24.30 ± 2.11	24.40 ± 4.01	27.60 ± 4.48	25.90 ± 16.41
Creatinine (mg/dl)	0.58 ± 0.08	0.62 ± 0.08	0.66 ± 0.10	0.61 ± 0.11
ALK Phos. (U/L)	78.80 ± 17.88	66.40 ± 13.91	101.90 ± 113.44	88.20 ± 26.82
AST (U/L)	143.60 ± 19.65	126.50 ± 35.05	180.50 ± 158.72	153.20 ± 29.51
ALT (U/L)	45.80 ± 8.36	42.50 ± 9.16	59.50 ± 43.52	58.30 ± 17.14
Potassium (mmol/L)	4.45 ± 0.20	4.50 ± 0.53	4.28 ± 0.41	4.09 ± 0.30
Albumin (g/dl)	3.87 ± 0.31	3.57 ± 0.11	3.54 ± 0.32	3.60 ± 0.26
Calcium (mg/dl)	10.25 ± 0.28	10.53 ± 0.23	10.62 ± 0.30	10.48 ± 0.52
Sodium (mmol/dl)	142.70 ± 0.67	142.00 ± 1.05	142.60 ± 1.51	142.40 ± 1.51
Total Bilirubin (mg/dl)	0.16 ± 0.07*	0.26 ± 0.05	0.33 ± 0.11	0.31 ± 0.11
Total Protein (g/dl)	6.92 ± 0.64	6.49 ± 0.25	6.44 ± 0.37	6.48 ± 0.30
Cholesterol (mg/dl)	119.30 ± 25.82	191.00 ± 64.06	190.20 ± 69.30	176.20 ± 69.00
Phosphorus (mg/dl)	6.33 ± 0.67	6.60 ± 0.99	6.91 ± 0.54	6.95 ± 1.92
Triglyceride (mg/dl)	91.10 ± 49.45	164.40 ± 77.23	227.90 ± 122.32	152.90 ± 112.11

Mean ± Standard Deviation

\*Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

APPENDIX A

FOOD AND WATER  
CONSUMPTION

Food Consumption (Females)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	25.66±0.52	30.64±0.63	32.16±0.49	37.45±4.56
2	73.5±0.77	76.65±0.78	80.91±0.81	81.66±0.80
3	76.11±0.90	77.54±1.20	82.05±1.84	82.82±1.46
4	79.21±1.05	82.60±0.99	87.23±1.50	82.43±1.29
5	77.40±1.19	83.55±1.14	83.53±1.12	85.51±1.77
6	75.52±0.82	80.70±1.16	84.05±1.38	81.61±1.61
7	84.86±1.17	91.07±1.19	94.22±1.23	96.14±2.88
8	62.00±0.89	66.92±1.21	69.33±1.19	68.21±1.38
9	78.77±0.99	81.70±1.45	85.53±1.55	88.05±2.29
10	77.76±0.80	82.41±1.41	87.71±1.17	89.33±1.55
11	96.92±11.22	96.71±1.36	99.46±1.24	98.27±1.81
12	60.69±1.10	66.44±2.27	78.84±16.54	70.01±2.21
14 *	31.53±0.37	34.79±0.45	35.80±0.54	35.70±0.75
15	74.29±0.80	77.39±1.46	82.66±1.00	84.44±1.51
16	65.41±9.04	81.97±1.05	99.23±15.48	85.85±1.35
17	74.40±0.88	79.07±1.43	85.45±1.80	87.84±4.54
18	78.26±0.94	98.60±14.12	89.18±2.54	94.49±3.00
19	75.26±0.89	82.60±1.19	84.76±0.79	87.59±1.37
20	71.70±1.52	80.14±1.15	80.11±0.85	81.86±2.03
21	87.40±1.54	94.68±1.18	97.21±1.55	82.46±21.02
22	63.32±0.90	66.84±1.11	71.75±1.39	75.42±1.57
23	73.55±0.83	77.64±1.32	83.39±1.82	83.97±2.21
24	75.38±1.26	82.42±1.47	85.68±1.86	88.03±1.50
25	77.79±1.09	85.07±1.66	90.39±1.57	87.99±3.53
26	86.82±0.99	96.68±1.33	100.80±1.36	98.91±1.59

Mean ± Standard Error

\*Data from 3 days

Food Consumption (Females)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
27	69.56±0.92	74.51±1.19	73.87±1.00	78.03±1.15
28	77.84±0.86	87.15±1.01	89.68±0.90	90.77±1.20
29	78.59±0.83	86.70±1.25	90.21±1.36	89.51±1.51
30	73.78±0.76	82.21±1.38	81.37±1.14	83.79±0.87
31	81.18±0.86	84.63±1.54	86.75±1.25	87.35±2.06
32	78.26±0.80	85.02±1.60	88.89±1.15	90.13±1.38
33	77.88±1.10	84.83±1.30	87.43±1.29	89.25±1.29
34	77.97±0.81	87.43±1.17	90.34±0.76	91.61±1.24
35	78.35±1.09	85.27±1.03	85.61±1.25	87.69±1.56
36	82.21±0.76	87.69±1.06	89.47±1.25	92.93±1.79
37	80.76±1.03	87.17±0.87	91.49±1.31	93.30±2.06
38	78.46±1.00	84.17±0.94	89.70±1.03	87.16±1.13
39	76.62±0.91	84.29±0.62	85.94±1.20	87.63±1.28
40	76.50±0.83	85.13±1.16	88.06±0.98	87.95±1.65
41	72.54±0.85	80.46±0.94	83.63±1.01	82.21±1.43
42	73.41±0.89	81.12±0.82	84.12±1.27	82.63±1.17
43	73.11±1.00	82.43±1.09	86.89±0.92	86.80±1.32
44	74.25±0.83	81.86±1.15	84.69±1.32	86.35±1.52
45	74.02±0.87	82.96±1.05	85.75±1.00	85.16±1.67
46	73.52±0.68	82.09±0.94	86.14±0.91	88.82±1.19
47	75.32±0.84	86.47±0.99	85.44±1.24	85.36±1.29
48	75.12±0.95	85.02±0.95	88.68±1.42	85.21±1.01
49	74.56±1.08	82.50±1.06	86.61±1.14	84.14±1.59
50	75.02±1.00	84.44±1.14	87.23±1.06	81.55±1.59
51	75.84±0.90	84.31±1.01	87.90±1.05	83.70±1.12
52	75.05±1.00	80.51±1.03	83.17±1.14	82.33±1.66
Mean ± Standard Error				

Food Consumption (Females)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
53	74.51±0.92	82.56±0.89	84.91±1.70	85.60±1.54
54	80.24±0.96	82.87±2.10	90.46±1.32	89.02±2.64
55	66.23±0.72	70.00±1.81	73.04±0.84	72.27±2.37
56	75.47±0.98	82.98±2.10	86.64±0.90	83.40±3.15
57	74.31±0.85	83.09±1.28	88.57±1.36	87.16±2.32
58	76.59±0.91	85.11±1.05	87.71±2.25	91.51±1.42
59	86.85±2.13	94.34±1.35	101.61±1.22	98.33±3.12
60	66.65±1.44	71.53±0.91	78.32±1.25	77.04±1.42
61	78.88±1.25	86.05±1.37	88.62±1.57	88.14±1.74
62	79.93±1.19	88.01±1.35	91.34±1.43	90.07±1.35
63	90.75±1.00	99.37±1.15	103.89±1.37	102.11±1.45
64	68.06±0.69	74.17±0.68	79.85±1.04	77.23±1.14
65	89.53±1.18	99.46±1.26	104.57±1.57	102.62±1.84
66	62.75±0.76	69.70±1.15	76.97±1.40	74.41±1.60
67	86.97±1.24	96.62±1.25	99.45±1.53	101.48±1.34
68	69.40±0.94	75.67±1.03	78.49±1.04	79.28±1.19
69	78.68±1.09	85.21±1.14	91.85±1.42	89.47±1.46
70	90.45±1.23	98.87±1.30	105.89±1.35	104.74±1.30
71	82.00±0.86	87.19±1.26	93.19±1.35	94.64±1.39
72	81.91±1.04	87.58±1.11	90.05±1.36	92.01±1.13
73	81.09±1.00	87.84±1.38	91.60±1.16	91.86±1.47
74	68.78±1.93	76.31±1.28	83.50±0.99	84.42±1.56
75	81.17±1.67	90.61±1.20	95.77±1.31	96.50±1.59
76	83.15±1.10	91.19±1.30	95.58±1.52	95.60±1.34
77	80.97±1.04	87.46±1.17	90.31±0.97	88.78±1.70
78	93.04±1.15	100.44±1.29	105.47±1.64	106.42±1.75
Mean ± Standard Error				



Food Consumption (Females)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
79	71.54±0.77	76.57±1.11	81.36±1.06	82.45±1.10
80	81.40±1.16	90.09±1.19	96.44±0.94	95.40±1.52
81	93.30±1.26	102.89±1.48	111.64±1.20	110.20±1.69
82	84.50±0.88	90.34±1.43	96.05±0.88	93.94±1.20
83	72.11±0.94	78.91±1.28	81.93±0.78	81.51±1.22
84	86.10±0.87	94.10±1.19	98.67±1.08	98.11±1.40
85	81.71±0.92	90.22±1.38	92.05±1.41	87.59±2.02
86	81.92±1.03	90.41±1.65	92.91±1.03	91.54±1.42
87	82.83±1.35	92.11±1.15	96.59±1.32	94.46±1.76
88	82.87±1.28	91.54±1.16	97.99±1.44	97.05±1.20
89	84.23±1.01	91.53±1.52	98.38±1.84	97.77±1.65
90	82.84±1.01	89.99±1.48	95.00±1.32	94.05±1.79
91	85.35±1.19	91.07±1.77	98.85±1.37	93.48±2.36
92	93.19±1.43	102.06±1.82	113.81±1.68	107.87±1.27
93 *	68.17±1.15	76.02±1.27	83.14±1.18	77.57±1.40
94	80.71±1.11	89.47±1.40	95.66±1.66	92.81±2.57
95	80.59±1.20	86.53±1.45	93.30±1.44	90.47±1.56
96	82.34±1.01	88.12±1.46	92.98±1.55	91.80±1.87
97	99.11±1.32	105.54±1.84	113.53±1.82	106.22±1.95
98	70.51±0.84	75.20±1.14	78.98±1.27	75.50±1.12
99	78.46±1.14	85.15±2.45	81.20±8.21	90.33±1.61
100	79.05±0.97	86.56±1.48	91.37±2.54	92.62±1.68
101	84.38±1.00	91.86±1.83	94.47±3.05	95.24±2.30
102	82.53±0.96	90.40±1.70	94.96±2.52	93.90±3.60
103	78.27±0.93	85.84±1.84	92.90±2.54	89.85±4.10
104	79.26±1.50	86.39±2.98	92.86±2.50	91.06±3.10

Mean ± Standard Error

\*Data from 4 days

Food Consumption (Males)  
(g/wk)

Week		Dose Group (mg TNB/kg diet)			
		300	60	5	0
1	*	42.34±0.53	49.97±0.53	50.34±0.67	49.32±0.55
2	**	160.18±4.48	166.08±4.45	180.84±4.58	160.50±5.17
3		110.54±1.65	116.50±1.67	119.52±1.48	118.60±1.72
4		111.32±1.29	117.80±1.16	118.10±1.93	121.89±2.02
5		114.06±1.25	117.94±1.42	120.73±1.20	120.93±2.07
6	*	58.54±3.78	65.25±4.28	52.10±4.02	80.56±4.38
7		110.31±1.31	112.85±1.57	116.11±1.73	117.96±2.19
8		103.70±1.58	107.57±1.62	113.03±1.49	118.15±1.54
9		105.95±1.09	110.82±1.35	116.16±1.81	120.73±1.97
10		108.96±1.12	113.76±1.19	120.35±1.17	125.11±1.80
11		103.20±1.59	112.93±1.91	117.15±1.90	120.22±1.70
12		95.90±1.94	103.71±1.84	111.00±1.44	110.54±2.21
14	*	47.30±0.69	48.90±0.79	51.57±0.77	50.79±1.04
15		107.74±1.11	112.48±1.55	119.13±1.59	118.63±1.91
16		106.37±1.47	113.23±1.39	118.04±1.68	116.36±1.59
17		89.84±1.05	100.01±1.32	106.70±1.53	101.52±1.71
18		108.02±1.22	121.84±1.50	130.12±1.66	123.29±2.17
19		117.47±2.57	133.62±1.77	141.23±2.07	132.07±2.32
20		106.39±1.54	116.15±1.60	121.20±2.31	117.19±2.26
21		111.54±1.23	122.67±1.72	124.43±4.26	117.45±5.42
22		103.09±1.19	113.07±1.73	121.99±2.28	115.44±2.33
23		105.17±2.09	117.02±1.91	123.44±1.89	116.23±2.10
24		110.36±1.76	124.72±1.73	125.76±1.54	123.44±2.19
25		112.40±1.13	124.59±1.44	126.87±1.97	118.79±2.50
26		107.00±2.98	107.79±6.10	106.98±6.97	95.29±6.52

Mean ± Standard Error

\*Data from 3 days; \*\* Data from 11 days

Food Consumption (Males)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
27	113.19±1.13	125.89±1.85	129.19±1.54	124.49±1.65
28	117.04±0.99	125.71±1.22	134.43±1.75	133.28±2.02
29	116.25±1.36	124.06±1.30	131.57±1.69	133.28±2.02
30	110.02±1.34	120.41±1.17	126.03±1.41	127.44±1.95
31	116.53±1.09	123.15±1.61	130.70±1.78	126.83±1.95
32	115.93±1.14	123.32±1.23	132.60±2.04	127.44±1.55
33	115.60±1.33	123.35±1.41	126.00±1.84	125.93±1.65
34	117.84±1.19	126.72±1.43	127.02±1.26	127.038±1.76
35	116.05±1.42	125.00±1.08	127.03±1.85	128.56±1.86
36	121.48±1.22	131.92±1.17	133.12±1.49	130.48±1.51
37	118.45±1.38	127.69±1.35	130.65±1.31	125.22±1.63
38/39	116.62 ±0.81	125.79±0.84	128.66±0.86	123.97±1.39
40	158.42±3.34	175.12±4.85	185.90±5.77	181.321±5.21
41	110.96±0.97	120.26±1.38	125.13±1.55	120.23±2.59
42	111.63±1.27	119.29±1.26	123.92±1.28	118.77±1.63
43	111.11±1.07	123.21±2.00	125.92±1.67	123.68±1.92
44 *	65.88±3.07	67.67±4.22	67.29±5.29	64.95±5.28
45	110.99±1.39	120.77±0.97	126.07±1.98	121.94±2.11
46	108.28±1.49	119.84±1.21	128.10±1.53	122.54±1.27
47	112.72±1.23	123.37±1.48	127.24±1.58	121.20±1.28
48	110.50±1.05	120.33±1.41	127.34±1.88	120.57±2.27
49	112.63±1.41	118.30±1.48	125.27±1.55	121.62±1.49
50	110.73±1.22	118.65±1.18	126.15±2.13	121.20±1.66
51	111.73±1.00	120.37±1.29	126.99±1.38	118.62±1.85
52	111.81±1.32	120.73±1.39	108.35±15.21	119.42±1.93

Mean ± Standard Error

\*Data from 4 days

Food Consumption (Males)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
53	110.41±2.13	119.49±1.14	123.32±1.58	122.12±2.62
54	106.09±1.51	118.62±1.43	116.08±1.18	110.79±1.81
55	107.53±0.92	117.65±0.96	119.09±1.59	113.99±1.51
56	107.82±0.93	117.54±1.00	117.08±2.31	115.98±1.24
57	109.39±1.30	117.28±1.34	119.29±1.61	115.92±1.77
58	110.16±1.13	116.68±1.32	120.06±1.66	117.92±2.20
59	113.50±1.28	119.33±1.36	124.02±1.42	122.51±2.10
60	96.47±1.65	104.48±0.95	108.10±1.35	101.90±1.12
61	116.41±0.93	141.78±1.58	145.68±2.56	139.86±2.28
62	116.41±0.93	124.37±1.67	127.80±2.14	122.03±1.68
63	112.85±1.32	117.91±2.24	124.32±1.27	119.58±1.78
64	111.08±3.32	117.83±1.53	125.75±1.15	121.50±1.87
65	111.78±4.34	121.29±1.85	128.23±1.67	123.13±2.28
66	103.76±1.61	116.10±2.05	123.01±1.73	114.12±1.85
67	109.75±1.60	123.77±1.34	126.24±1.49	121.94±1.62
68	113.36±1.29	119.11±1.53	124.73±1.43	120.25±1.86
69	94.27±1.16	98.99±1.59	105.84±1.49	101.39±1.19
70	126.24±1.36	132.33±1.41	136.86±1.79	132.03±1.76
71	113.69±1.20	117.12±1.68	124.94±2.04	120.18±1.68
72	110.69±1.19	117.27±1.65	123.20±1.63	119.61±1.93
73	110.04±1.41	121.05±1.42	124.90±1.96	122.92±2.59
74	110.48±1.10	121.17±1.37	128.73±1.88	122.74±2.08
75	111.56±1.24	122.87±1.41	127.46±2.52	126.95±1.89
76	110.05±1.53	122.11±1.42	126.88±1.97	123.98±2.25
77	96.47±1.13	105.07±1.27	108.75±1.40	104.75±1.40
78	125.32±1.32	136.52±1.47	141.94±2.27	137.41±2.19
Mean ± Standard Error				

Food Consumption (Males)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
79	109.60±2.06	120.44±1.54	126.70±1.94	122.12±1.95
80	95.70±1.27	105.58±1.22	111.70±2.07	109.09±1.78
81	124.67±1.33	138.12±1.76	143.03±2.28	139.08±1.92
82	111.22±1.27	122.86±1.20	127.25±2.17	124.56±1.86
83	107.86±1.17	121.11±1.54	125.68±2.12	122.32±1.34
84	109.95±1.00	120.67±1.36	127.31±1.87	123.92±1.81
85	94.02±1.16	103.00±1.34	105.20±1.75	107.80±1.93
86	122.82±1.28	136.20±1.74	137.21±3.00	135.84±2.09
87	111.61±1.19	122.30±1.40	125.39±2.38	122.61±1.86
88	94.76±1.77	105.36±1.23	107.17±2.12	102.87±1.59
89	122.84±1.69	137.90±1.44	143.53±2.56	140.58±2.55
90	108.43±1.23	120.82±1.72	125.48±2.18	120.95±1.61
91	110.07±1.25	120.74±1.52	129.05±2.27	119.79±2.08
92/93	*	*	*	*
94	125.46±1.13	133.51±1.97	140.88±2.24	132.13±2.35
95	108.40±1.30	114.62±1.76	122.04±1.92	116.97±2.04
96	109.10±1.56	117.19±1.66	122.04±1.92	118.77±2.12
97	114.74±1.91	122.14±2.20	128.39±2.95	120.39±1.98
98	94.32±1.41	101.26±1.87	106.03±2.68	99.87±1.96
99	105.95±10.43	128.45±3.94	129.96±14.13	133.24±2.72
100	87.84±1.74	97.06±1.89	102.85±3.51	99.12±2.09
101	116.33±2.90	132.34±1.72	130.65±5.54	132.06±2.74
102	85.90±3.31	81.69±3.25	86.93±5.65	100.92±2.48
103	99.11±3.82	113.67±1.65	113.51±5.72	113.59±3.53
104	102.82±2.87	113.66±2.38	110.95±6.54	112.67±3.98

Mean ± Standard Error

\* Data unavailable

Water Consumption (Females)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	39.19±0.82	39.85±2.97	44.08±0.96	47.95±1.01
2	114.47±1.38	110.66±1.79	114.72±1.73	117.83±1.69
3	121.69±1.41	115.91±1.61	115.95±1.89	114.43±1.54
4	126.72±1.78	121.41±1.91	121.13±2.45	115.43±2.29
5	122.88±2.45	118.11±2.54	116.52±2.33	113.72±2.44
6	124.63±1.70	125.19±2.14	118.36±2.28	113.32±2.03
7	149.60±2.07	143.38±2.65	140.12±2.47	140.77±4.40
8	106.83±1.68	104.05±1.75	102.85±1.69	98.99±2.01
9	130.82±1.70	128.09±2.57	126.12±2.24	121.33±2.11
10	131.45±1.65	127.77±2.23	128.85±2.65	120.89±2.05
11	142.48±3.17	125.92±6.00	144.41±2.89	133.56±2.78
12	107.48±1.56	92.49±9.18	100.49±2.83	95.61±1.77
14	132.88±2.00	129.09±2.57	124.97±2.25	118.90±2.29
15	131.80±3.92	132.15±2.97	129.96±2.33	120.20±2.54
16	137.04±2.40	136.12±2.66	133.85±2.43	125.40±2.49
17	142.84±2.47	141.45±2.85	141.97±2.76	133.05±2.71
18	145.42±2.46	118.24±21.11	139.00±2.74	128.19±2.52
19	128.99±2.07	124.71±2.89	126.62±2.27	120.39±2.06
20	163.29±2.99	156.22±3.20	148.94±2.34	143.45±2.58
21	128.41±2.24	121.85±2.70	120.10±1.89	114.45±2.66
22	133.73±2.66	132.22±2.83	129.55±1.86	118.44±2.41
23	144.20±2.66	137.11±2.62	134.68±2.42	122.09±2.53
24	148.92±2.79	145.39±3.42	139.48±2.45	132.22±2.34
25	169.54±3.19	166.87±3.60	161.15±2.78	154.01±2.83
26	135.98±2.82	131.77±2.40	128.78±2.02	124.17±2.12
27	155.59±2.67	147.61±2.75	141.16±2.42	136.84±1.91

Mean ± Standard Error

\*Data from 3 days

Water Consumption (Females)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
28	156.65±2.91	151.53±3.07	149.09±2.59	142.72±2.23
29	163.04±2.66	157.59±3.65	149.94±2.67	142.97±2.11
30	158.85±2.54	150.03±2.69	143.10±2.70	135.63±1.94
31	158.93±2.64	151.70±3.10	145.15±2.22	138.74±1.80
32	158.82±2.38	150.08±2.72	142.97±2.01	136.76±1.80
33	159.39±2.15	148.60±3.36	143.31±2.24	138.54±2.10
34	162.63±2.99	153.05±2.70	153.19±6.32	143.43±1.98
35	162.09±2.64	151.29±2.54	146.95±2.51	143.45±2.48
36	167.60±3.12	155.75±2.60	150.49±2.52	145.84±2.82
37	165.21±2.60	155.07±2.57	149.38±2.18	145.22±2.02
38	163.83±2.87	157.96±2.70	147.92±2.58	144.63±2.22
39	184.13±2.84	175.03±3.09	168.68±3.00	165.66±2.27
40	139.41±2.27	136.50±2.60	130.23±2.36	122.22±1.94
41	160.79±2.70	153.18±2.70	147.82±2.68	140.78±2.14
42	159.20±2.76	153.08±3.01	144.84±2.61	138.55±2.05
43	161.16±2.63	151.95±2.94	145.37±2.44	140.39±3.08
44	188.18±5.22	176.10±3.39	168.06±3.26	162.73±2.33
45	143.65±2.29	135.16±2.75	125.64±2.35	120.96±2.17
46	162.23±2.79	155.16±2.85	145.65±2.76	136.14±2.83
47	163.60±2.45	155.87±3.18	146.44±3.09	137.41±2.06
48	162.00±2.70	153.75±3.31	147.09±3.15	139.84±2.55
49	163.53±2.51	153.82±2.89	150.84±3.06	138.64±2.31
50	164.16±2.77	156.55±3.39	152.14±3.05	140.50±2.85
51	165.64±2.96	151.80±2.86	142.24±2.61	138.85±2.71
52	163.21±2.78	153.66±2.96	142.82±2.64	141.12±3.21
53	175.08±2.80	163.58±3.28	159.83±3.36	156.41±4.56
Mean ± Standard Error				

Water Consumption (Females)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
54	137.43±2.18	128.11±2.07	116.72±1.80	115.51±2.97
55	164.05±2.67	157.25±2.84	146.28±2.22	147.01±4.10
56	169.61±3.08	158.92±3.24	150.07±3.10	145.28±4.16
57	207.08±3.81	198.12±4.57	186.18±3.87	176.68±3.89
58	173.14±2.74	161.57±3.62	154.70±2.79	145.72±3.73
59	149.74±2.08	140.46±2.46	135.56±2.94	126.73±3.10
60	172.10±2.26	160.99±3.04	150.66±3.19	146.25±3.47
61	174.89±2.50	161.72±3.59	152.48±2.83	147.58±2.85
62	202.82±2.57	187.33±4.26	174.63±3.04	170.85±3.41
63	154.80±2.53	147.42±3.51	142.13±2.86	130.92±3.06
64	181.12±2.63	168.39±3.52	160.83±3.48	149.92±3.96
65	161.16±2.85	158.12±3.23	154.90±3.54	142.55±3.63
66	187.71±3.18	172.90±3.49	157.52±2.43	150.67±3.80
67	186.95±3.12	175.64±3.52	163.22±2.76	156.60±3.31
68	187.58±3.33	173.81±3.74	164.95±2.90	157.62±3.32
69	219.49±4.25	197.29±4.93	192.01±4.09	183.77±3.15
70	191.70±3.16	181.87±3.93	169.18±3.28	160.90±3.62
71	197.36±3.15	182.44±3.56	172.27±3.34	169.22±3.74
72	193.25±3.34	178.92±3.88	169.07±3.39	165.68±3.50
73	167.45±2.71	156.09±3.26	149.22±2.73	145.85±2.95
74	199.34±3.18	183.11±4.24	173.29±3.04	162.31±3.84
75	201.84±3.65	187.98±4.16	176.38±2.98	169.95±3.53
76	191.03±2.90	174.28±3.60	165.59±2.84	154.71±3.39
77	218.10±3.67	199.28±3.99	182.01±4.24	181.54±4.84
78	167.16±2.72	150.42±3.23	143.93±3.15	142.09±3.64
79	197.29±3.02	178.34±3.85	166.06±4.11	159.26±3.69
Mean ± Standard Error				



Water Consumption (Females)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
80	232.45±3.90	210.57±5.12	200.65±3.39	185.30±4.70
81	204.02±2.85	184.36±4.29	181.46±5.21	165.71±4.90
82	168.04±2.51	153.49±3.53	145.81±2.75	135.46±3.30
83	194.01±2.42	177.75±4.04	167.46±2.82	157.42±4.82
84	210.78±2.73	190.37±4.43	184.93±3.76	171.06±5.20
85	203.75±2.58	184.31±4.73	173.21±3.19	160.74±5.33
86	199.44±3.51	180.27±5.02	171.81±3.57	159.07±3.79
87	199.05±3.71	181.00±4.58	178.78±3.60	163.25±4.47
88	199.47±3.89	182.52±5.04	179.01±4.11	170.85±3.80
89	200.92±3.36	190.22±5.93	177.14±4.62	165.47±4.05
90	200.89±3.61	183.57±5.69	172.40±3.87	165.57±5.76
91	234.79±4.81	210.22±6.69	208.13±4.36	189.40±5.76
92	175.52±4.38	159.81±4.67	159.24±4.26	141.90±4.13
93	196.48±5.20	178.67±5.78	175.95±4.50	158.75±5.22
94	200.59±5.48	180.99±6.02	170.76±4.29	169.77±5.40
95	199.13±5.57	178.61±6.00	168.77±4.09	160.11±4.87
96	229.91±6.47	208.39±6.94	199.21±5.07	190.18±5.98
97	174.53±6.76	152.17±4.77	142.27±3.48	137.54±5.77
98	189.28±6.53	174.09±5.67	150.22±11.56	155.98±5.89
99	193.42±6.13	167.30±5.74	159.96±4.77	158.24±6.75
100	200.80±7.44	180.12±6.22	174.38±6.72	168.41±7.42
101	220.09±7.52	194.14±7.05	179.82±6.80	173.41±8.78
102	198.96±7.73	182.34±6.93	176.18±6.50	167.13±9.90
103 *	289.68±10.02	260.14±11.40	257.38±9.82	236.23±13.79
104 **	88.66±3.35	79.14±3.74	76.37±3.07	70.71±3.91

Mean ± Standard Error

\*Data from 11 days; \*\*Data from 3 days

Water Consumption (Males)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	54.85±0.85	62.19±1.13	61.18±1.14	62.21±0.96
2 **	218.83±3.59	237.28±5.87	258.36±6.45	237.29±5.85
3	144.33±2.21	146.90±2.22	150.17±2.86	145.47±2.91
4	149.98±2.21	148.30±1.98	148.38±2.53	147.23±2.80
5	149.89±1.87	144.30±1.89	143.58±2.69	147.58±2.73
6 ***	71.38±4.07	57.07±5.45	38.07±5.73	58.23±5.52
7	152.17±1.71	147.80±2.06	147.85±2.22	150.22±3.09
8	144.55±2.39	139.07±2.16	141.70±2.42	139.31±2.03
9	148.31±2.41	141.65±1.89	145.19±2.59	149.93±2.53
10	153.66±2.50	144.60±2.36	147.56±2.06	150.62±2.44
11	147.05±2.26	142.26±2.22	146.01±2.16	144.11±2.83
12	132.46±3.55	130.75±1.99	131.76±2.41	129.18±2.68
14	157.59±2.26	145.30±1.99	145.52±2.28	142.26±2.73
15	150.84±2.15	144.99±2.10	145.03±2.54	124.69±17.69
16	154.75±2.51	151.80±4.23	148.40±2.28	143.58±2.98
17	156.69±2.15	155.16±2.15	156.99±2.59	149.74±3.22
18	162.50±2.54	155.08±2.42	155.67±2.86	146.29±3.40
19	148.68±1.94	144.72±2.43	144.46±2.41	135.47±3.11
20	182.43±2.61	178.44±2.63	175.72±3.01	163.29±3.16
21	141.84±2.02	136.80±1.92	136.89±2.77	125.53±2.70
22	149.00±2.64	142.06±2.40	142.27±2.08	131.65±4.05
23	166.03±2.82	155.36±2.09	153.12±2.20	142.99±2.67
24	171.33±2.41	162.64±2.47	157.43±2.54	148.11±3.19
25	195.83±3.26	180.56±2.48	178.25±3.22	161.52±5.62
26	153.16±2.51	147.33±2.95	139.97±2.70	131.87±4.06
27	168.65±2.60	157.90±1.90	156.27±2.89	154.23±2.85

Mean ± Standard Error

\*Data from 3 days; \*\*Data from 11 days; \*\*\*Data from 4 days

Water Consumption (Males)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
28	181.37±2.67	162.40±2.09	165.28±2.61	159.09±3.00
29	171.82±2.54	160.42±1.78	156.55±2.00	151.67±3.13
30	177.65±2.67	164.16±2.50	158.47±2.17	155.63±3.28
31	179.49±2.89	161.90±2.22	156.84±2.46	147.31±2.64
32	177.38±3.05	161.78±2.04	154.62±2.01	146.34±3.01
33	181.50±2.72	159.67±2.25	150.64±2.02	144.85±2.94
34	179.31±2.74	161.55±1.61	152.93±1.77	149.61±2.15
35	184.01±2.94	164.28±2.05	155.43±1.93	148.35±2.24
36	188.24±2.59	164.75±2.20	158.55±2.46	152.43±2.44
37	188.49±2.62	167.33±2.14	157.16±2.28	148.43±2.22
38/39	183.96±2.21	167.51±1.40	154.07±1.54	148.33±1.89
40/41	182.28±2.31	165.20±1.68	154.21±1.61	149.03±1.75
42	176.96±2.96	158.21±2.63	147.97±1.99	145.08±2.40
43	177.59±2.45	159.32±1.75	148.68±1.54	144.90±1.75
44	86.94±1.12	80.29±0.68	74.20±0.77	73.49±0.84
45	172.50±3.23	155.68±2.21	147.27±2.15	141.20±1.66
46	174.90±2.72	154.79±2.09	149.39±1.88	138.39±1.96
47	177.19±2.61	155.04±2.11	147.39±2.14	140.22±2.22
48	175.75±2.58	154.45±2.11	146.48±1.80	137.84±1.99
49	176.84±3.12	151.55±2.09	149.61±1.59	141.55±1.77
50	177.53±3.12	155.45±2.16	153.24±2.24	137.28±2.11
51	169.65±2.30	154.30±2.24	143.90±1.97	139.62±2.58
52	174.42±4.45	154.13±1.66	144.30±2.05	140.12±2.13
53	190.23±3.09	173.45±1.84	164.72±2.06	152.74±1.92

Mean ± Standard Error

Water Consumption (Males)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
54	146.47±2.80	135.60±1.72	125.97±2.68	116.11±1.97
55	169.14±2.94	152.61±1.80	144.59±2.13	139.28±2.18
56	171.34±2.63	151.82±2.37	145.22±2.86	137.42±2.21
57	172.55±2.58	154.67±1.93	149.16±2.51	141.06±2.30
58	205.32±3.37	184.51±2.26	177.18±2.86	165.12±2.73
59	158.20±2.68	140.82±1.83	135.51±2.91	122.75±1.68
60	177.75±2.74	159.31±2.14	156.23±2.58	142.17±1.93
61	184.08±3.31	164.72±2.60	157.49±2.97	148.39±2.34
62	180.10±3.08	158.23±2.27	158.06±2.70	144.26±2.01
63	179.64±3.23	158.79±2.70	160.31±2.48	148.02±2.72
64	178.69±2.61	162.69±2.43	162.71±2.69	150.42±2.82
65	157.10±2.93	150.61±2.26	152.07±3.18	138.78±3.30
66	181.67±3.33	166.00±2.66	163.60±2.84	149.21±2.30
67	179.36±2.24	166.52±2.13	164.40±3.03	150.93±2.40
68	158.07±2.70	143.79±2.27	139.45±1.88	128.73±1.74
69	236.24±3.46	211.56±3.90	206.20±3.27	194.71±2.81
70	163.57±2.72	150.31±2.82	146.50±3.28	132.79±2.81
71	191.62±2.78	175.93±3.56	173.85±3.76	159.22±2.99
72	186.71±2.91	175.74±2.79	174.51±3.98	158.26±3.19
73	183.27±2.76	176.71±3.00	177.75±4.61	161.90±3.26
74	192.56±2.62	179.70±3.07	176.65±4.90	161.57±3.94
75	191.24±3.42	183.13±4.00	179.31±4.93	168.45±4.02
76	158.18±2.72	150.58±3.09	150.68±3.78	141.51±3.27
77	212.17±4.14	195.37±4.22	193.84±5.83	184.82±3.40
78	183.51±3.43	173.59±3.79	176.45±5.62	160.75±3.49
79	161.70±2.88	155.52±2.60	159.30±5.06	139.93±3.69
Mean ± Standard Error				

Water Consumption (Males)  
(g/wk)

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
80	216.02±3.33	205.05±3.89	207.86±6.01	186.34±4.13
81	194.89±3.61	187.87±3.43	188.58±5.71	169.95±3.00
82	182.63±3.18	175.56±3.12	180.33±5.96	160.66±3.83
83	187.06±3.31	176.66±3.50	181.98±5.21	166.86±4.34
84	173.32±3.72	161.33±3.07	169.36±5.92	153.16±3.28
85	210.53±3.93	203.60±4.06	209.50±6.47	190.72±4.46
86	187.46±3.78	179.00±3.61	179.86±5.75	168.58±4.56
87	163.42±4.06	158.43±3.23	163.60±4.96	146.95±3.47
88/89	197.54±4.90	198.17±7.14	181.93±6.58	177.24±4.83
90	191.28±3.78	185.53±4.26	197.83±6.03	175.74±4.41
91	196.10±4.54	190.45±4.52	196.72±5.27	173.71±4.85
92	165.26±3.61	158.12±3.95	167.03±3.99	143.59±4.47
93	224.66±6.91	205.66±5.80	214.82±6.69	188.31±6.26
94	200.62±5.05	188.56±5.17	193.51±6.06	172.31±5.56
95	196.84±5.88	187.29±4.91	194.01±6.15	173.03±4.37
96	208.35±6.38	196.00±5.15	127.19±9.73	183.15±6.16
97	175.29±5.59	169.39±4.40	171.87±7.19	158.85±5.54
98	244.78±18.13	222.56±6.02	237.85±10.25	206.69±8.31
99	151.43±14.20	161.88±4.41	144.38±19.44	134.25±16.66
100	217.37±7.38	229.19±6.18	234.51±13.22	214.81±8.85
101	185.57±7.77	200.55±5.39	172.83±18.44	162.74±7.74
102	***	***	201.15±14.58	182.57±9.52
103 *	273.76±12.56	285.75±10.02	290.92±22.56	255.94±13.35
104 **	83.93±3.94	83.67±2.84	85.79±7.19	74.93±4.06

Mean ± Standard Error

\*Data from 11 days; \*\*Data from 3 days; \*\*\*Data unavailable

APPENDIX B

BODY WEIGHTS

Body Weights (Weeks 1-53)

Females

Dose Group (mg TNB/kg diet)

Weeks	300	60	5	0
1-2	136.83±0.63	136.61±0.92	134.92±1.01	135.23±0.74
3-4	150.29±0.57	152.56±0.57	153.25±0.47	152.79±0.60
5-6	159.58±0.52	163.17±0.61	163.45±0.53	162.45±0.62
7-8	165.71±0.59	169.23±0.65	168.79±0.56	168.05±0.64
9-10	166.77±0.62	172.75±0.69	173.78±0.65	172.36±0.68
11-12	169.24±0.64	177.02±0.77	179.28±0.77	177.47±0.82
14-15	178.25±0.70	185.96±0.86	186.40±0.75	183.04±0.85
16-17	178.95±0.92	187.56±0.94	189.24±0.79	184.17±0.91
18-19	182.27±0.77	191.41±0.95	193.43±0.92	187.02±0.92
20-21	181.05±0.82	192.29±0.97	195.01±0.89	190.02±0.91
22-23	183.32±0.78	194.09±0.97	197.06±0.92	190.91±0.98
24-25	186.78±0.77	197.79±0.98	200.78±0.96	193.63±0.95
26-27	189.81±0.77	201.01±1.04	204.91±1.01	197.60±1.00
28-29	190.51±0.88	203.21±1.19	206.79±1.12	199.94±1.19
30-31	191.91±0.91	205.89±1.20	209.72±1.10	202.44±1.11
32-33	192.56±0.88	206.71±1.21	210.22±1.08	205.43±1.16
34-35	193.25±0.89	208.12±1.20	212.67±1.09	207.84±1.19
36-37	194.52±0.88	209.22±1.20	214.36±1.08	209.26±1.18
38-39	196.26±0.90	212.31±1.19	217.18±1.10	212.25±1.22
40-41	196.31±0.94	213.76±1.21	220.24±1.15	215.41±1.29
42-43	198.66±0.93	216.48±1.22	223.15±1.13	218.53±1.38
44-45	199.67±0.95	217.77±1.26	226.00±1.21	221.19±1.46
46-47	200.15±0.95	219.07±1.34	227.99±1.26	224.13±1.46
48-49	201.29±0.98	223.44±1.37	232.33±1.34	227.55±1.50
50-51	201.96±0.96	225.00±1.38	235.25±1.41	228.64±1.59
52-53	204.24±1.00	226.76±1.37	236.66±1.37	231.86±1.74

Mean ± Standard Error

Body Weights (Weeks 54-104)

Females

Dose Groups (mg TNB/kg diet)

Weeks	300	60	5	0
54-55	203.21±1.09	225.39±1.48	237.49±1.50	232.60±2.05
56-57	206.13±1.15	228.62±1.52	239.71±1.55	234.80±2.22
58-59	206.68±1.19	231.11±1.61	244.09±1.63	239.27±2.20
60-61	207.64±1.18	232.67±1.64	248.81±1.45	242.33±1.58
62-63	208.30±1.20	234.85±1.68	249.37±1.81	244.72±2.26
64-65	211.38±1.26	237.91±1.71	251.80±2.35	248.61±2.18
66-67	209.32±1.26	238.83±1.76	256.97±1.90	250.78±2.08
68-69	208.04±0.45	233.86±0.61	248.26±0.67	243.10±0.78
70-71	213.66±1.47	244.15±1.88	261.89±2.32	255.52±2.22
72-73	216.57±1.47	246.34±1.90	265.73±2.43	258.18±2.44
74-75	218.43±1.57	249.18±1.97	269.49±2.16	261.70±2.47
76-77	220.14±1.63	251.71±2.07	271.70±2.41	264.88±2.54
78-79	222.38±1.66	255.17±2.16	274.45±2.34	269.17±2.03
80-81	223.11±1.72	255.72±2.40	276.29±2.35	270.53±2.03
82-83	225.04±1.79	257.68±2.60	278.94±2.38	272.30±2.43
84-85	225.21±1.80	259.91±2.54	280.92±2.38	274.05±2.85
86-87	226.33±1.92	261.66±2.60	282.35±2.58	272.85±3.28
88-89	227.12±1.98	261.71±2.67	285.89±2.57	277.80±2.45
90-91	229.51±1.92	263.63±2.95	285.54±2.79	281.21±2.47
92-93	231.75±1.94	265.22±2.99	290.33±3.31	284.86±2.67
94-95	230.39±1.81	267.04±3.15	294.22±2.75	285.12±3.01
96-97	230.53±1.94	267.79±3.21	293.51±2.96	285.44±3.00
98-99	229.50±2.09	265.43±3.29	291.69±2.92	279.86±2.76
100-101	232.48±2.20	267.49±3.55	293.13±3.14	279.11±3.63
102-103	232.82±2.13	269.52±3.61	292.58±3.38	280.88±3.28
104	232.94±3.43	269.65±5.36	293.95±5.91	280.37±6.13

Mean ±Standard Error



Body Weights (Weeks 1-53)

Males

Dose Group (mg TNB/kg diet)

Weeks	300	60	5	0
1-2	209.24±2.27	215.45±2.56	214.23±2.53	211.87±2.84
3-4	220.64±1.01	230.80±1.04	230.13±0.92	227.39±1.20
5-6	238.91±1.17	251.57±1.31	251.50±1.17	247.97±1.59
7-8	263.71±0.98	276.82±1.16	278.58±0.93	273.78±1.31
9-10	271.36±1.20	288.63±1.32	289.61±1.09	283.91±1.45
11-12	278.03±1.40	301.58±1.56	303.87±1.29	296.74±1.67
14-15	298.21±1.68	322.86±1.81	324.30±1.62	313.37±2.04
16-17	309.13±1.71	331.08±1.94	335.97±1.49	322.32±2.31
18-19	315.42±1.70	342.14±2.05	369.98±23.18	331.28±2.49
20-21	318.33±1.75	347.36±2.18	352.50±1.78	335.47±2.62
22-23	326.23±1.73	356.13±2.17	361.42±1.67	343.12±2.65
24-25	336.46±1.70	365.38±2.25	370.04±1.63	351.75±2.64
26-27	342.62±1.63	369.29±2.22	375.67±1.64	357.96±2.60
28-29	347.56±1.69	377.23±2.39	383.57±1.89	364.83±2.87
30-31	345.77±1.63	378.15±2.29	384.74±1.90	365.31±2.79
32-33	351.37±1.70	383.30±2.27	389.61±2.01	370.22±2.71
34-35	355.01±1.71	386.97±2.31	393.82±1.96	374.28±2.71
36-37	358.12±1.74	391.32±2.18	397.06±2.35	378.12±2.78
38-39	365.31±1.50	401.53±1.89	411.25±1.66	388.93±2.45
40-41	363.67±1.82	399.76±2.26	410.28±1.88	388.49±2.71
42-43	369.46±1.81	407.63±2.30	418.06±1.93	396.34±2.80
44-45	367.36±2.65	408.93±3.22	421.07±2.77	398.15±4.06
46-47	372.46±1.92	412.42±2.28	425.88±2.05	402.78±2.91
48-49	377.40±1.91	419.42±2.32	429.71±2.30	406.53±2.90
50-51	378.52±1.93	422.14±2.32	432.39±2.11	410.48±2.92
52-53	378.47±1.91	424.35±2.32	437.02±2.17	412.88±3.18

Mean ± Standard Error

Body Weights (Weeks 54-104)

Males

Dose Groups (mg TNB/kg diet)

Weeks	300	60	5	0
54-55	378.33±2.10	425.23±2.54	433.66±2.46	409.89±3.95
56-57	377.70±2.11	422.24±2.53	430.08±2.49	409.85±3.88
58-59	377.47±2.27	421.94±2.46	429.93±2.37	410.37±4.55
60-61	381.04±2.37	425.06±2.46	432.88±2.53	414.85±4.30
62-63	376.88±2.54	422.28±2.61	429.13±2.94	411.99±4.68
64-65	380.79±2.40	423.99±3.01	430.35±3.61	413.03±5.23
66-67	376.81±2.51	426.66±2.52	435.35±2.88	418.03±4.77
68-69	377.77±0.83	423.67±0.92	431.48±0.98	413.36±1.54
70-71	374.12±2.73	419.23±2.84	430.69±3.01	417.77±4.14
72-73	371.24±3.14	415.65±3.04	429.87±3.15	416.49±4.65
74-75	371.40±3.65	418.33±3.28	431.90±3.37	423.35±3.59
76-77	369.62±3.08	417.62±3.22	430.80±3.57	422.98±3.78
78-79	368.49±3.47	415.68±3.73	430.75±4.22	422.23±3.74
80-81	364.08±3.88	412.80±3.80	428.57±4.80	421.11±3.79
82-83	368.48±2.87	415.09±3.75	428.58±4.13	422.90±3.84
84-85	364.58±3.11	411.42±3.98	424.97±4.52	420.83±4.04
86-87	363.76±2.93	409.89±3.83	424.27±4.71	416.83±4.48
88-89	361.55±2.85	406.41±3.94	417.94±5.17	413.85±4.55
90-91	362.06±3.16	405.23±4.37	414.09±5.68	414.82±4.09
92-93	356.18±3.70	399.16±4.46	406.51±6.05	405.95±3.90
94-95	361.75±3.28	396.63±4.41	406.03±5.83	401.56±3.94
96-97	360.40±3.58	395.45±4.01	409.55±4.35	395.74±4.55
98-99	360.29±5.32	388.52±4.72	397.28±6.91	385.73±5.80
100-101	354.49±5.27	391.95±4.19	385.51±6.90	385.36±5.65
102-103	345.88±8.68	388.98±5.19	389.94±8.62	383.63±6.20
104	341.47±8.99	382.57±5.36	385.51±8.52	376.55±10.41

Mean ±Standard Error

APPENDIX C

ORGAN WEIGHTS

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
1	27	232.36	1.781	1.155	7.306	0.766	0.497	3.144
1	28	243.19	1.857	1.504	7.336	0.764	0.618	3.017
1	29	210.50	1.634	1.334	6.877	0.776	0.634	3.267
1	30	210.00	1.649	1.423	6.344	0.785	0.678	3.021
1	31	229.20	1.657	1.364	7.112	0.723	0.595	3.103
1	32	204.56	1.545	1.106	7.106	0.755	0.541	3.474
1	33	207.89	1.570	0.971	6.267	0.755	0.467	3.015
1	34	224.26	1.747	1.180	7.172	0.779	0.526	3.198
1	35	179.07	1.659	1.740	6.536	0.926	0.972	3.650
1	36	223.84	1.688	1.108	6.483	0.754	0.495	2.896
1	37	211.27	1.717	0.977	6.540	0.813	0.462	3.096
1	38	282.40	1.697	1.196	8.526	0.601	0.424	3.019
1	39	200.17	1.633	1.250	8.197	0.816	0.624	4.095
1	40	245.55	1.709	1.369	7.967	0.696	0.558	3.245
1	41	219.39	1.615	1.067	6.404	0.736	0.486	2.919
1	42	219.88	1.943	1.359	15.313	0.884	0.618	6.964
1	43	190.16	1.609	1.217	8.756	0.846	0.640	4.605
1	44	213.81	1.813	1.146	6.949	0.848	0.536	3.250
1	45	199.42	1.503	1.077	6.315	0.754	0.540	3.167
1	46	221.20	1.747	1.058	5.053	0.790	0.478	2.284
1	47	216.23	1.764	1.184	6.692	0.816	0.548	3.095
1	48	220.89	0.926	1.381	7.458	0.419	0.625	3.376
1	50	215.08	1.687	1.268	6.506	0.784	0.590	3.025
1	51	199.03	1.534	1.195	6.379	0.771	0.600	3.205
1	52	271.14	2.372	1.409	11.792	0.875	0.520	4.349
1	53	199.64	1.650	1.168	8.072	0.826	0.585	4.043
1	54	221.25	2.177	1.269	12.289	0.984	0.574	5.554
1	55	194.33	1.667	1.136	6.056	0.858	0.585	3.116
1	56	210.67	1.777	1.418	8.353	0.843	0.673	3.965
1	57	217.61	1.648	1.215	6.513	0.757	0.558	2.993
1	58	219.98	1.626	1.243	6.395	0.739	0.565	2.907
1	61	201.35	1.630	1.297	6.966	0.810	0.644	3.460
1	62	227.29	1.656	1.238	7.183	0.729	0.545	3.160
1	63	204.64	1.764	1.167	6.499	0.862	0.570	3.176
1	64	188.95	1.472	1.021	6.171	0.779	0.540	3.266
1	65	242.73	1.737	1.200	7.682	0.716	0.494	3.165
1	66	171.46	1.487	1.137	6.819	0.867	0.663	3.977
1	69	235.40	1.744	1.299	6.603	0.741	0.552	2.805
1	70	218.91	2.001	1.315	7.792	0.914	0.601	3.559
1	71	224.61	1.656	1.220	6.885	0.737	0.543	3.065
1	72	216.04	1.749	1.287	6.560	0.810	0.596	3.036
1	73	204.43	1.579	1.215	6.108	0.772	0.594	2.988
1	74	183.09	2.024	1.600	7.394	1.105	0.874	4.038
1	75	212.39	1.647	1.164	6.593	0.775	0.548	3.104

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
1	27	232.36	0.879	1.733	0.672	0.378	0.746	0.289
1	28	243.19	0.877	1.881	0.597	0.361	0.773	0.245
1	29	210.50	0.826	1.839	0.542	0.392	0.874	0.257
1	30	210.00	0.754	1.781	0.732	0.359	0.848	0.349
1	31	229.20	1.089	1.948	0.686	0.475	0.850	0.299
1	32	204.56	0.663	1.844	0.528	0.324	0.901	0.258
1	33	207.89	0.771	1.791	0.637	0.371	0.862	0.306
1	34	224.26	0.885	1.845	0.774	0.395	0.823	0.345
1	35	179.07	1.009	1.717	2.491	0.563	0.959	1.391
1	36	223.84	0.891	1.574	0.629	0.398	0.703	0.281
1	37	211.27	0.786	1.645	0.538	0.372	0.779	0.255
1	38	282.40	1.000	2.004	0.640	0.354	0.710	0.227
1	39	200.17	0.779	1.634	0.711	0.389	0.816	0.355
1	40	245.55	0.959	1.889	0.588	0.391	0.769	0.239
1	41	219.39	0.804	1.848	0.669	0.366	0.842	0.305
1	42	219.88	0.956	1.936	2.691	0.435	0.880	1.224
1	43	190.16	0.794	1.711	0.685	0.418	0.900	0.360
1	44	213.81	0.753	1.856	0.608	0.352	0.868	0.284
1	45	199.42	0.760	1.926	0.502	0.381	0.966	0.252
1	46	221.20	0.833	1.726	0.599	0.377	0.780	0.271
1	47	216.23	0.867	1.817	0.562	0.401	0.840	0.260
1	48	220.89	0.787	1.777	0.702	0.356	0.804	0.318
1	50	215.08	0.822	1.606	0.624	0.382	0.747	0.290
1	51	199.03	0.764	1.814	0.559	0.384	0.911	0.281
1	52	271.14	0.978	1.531	0.860	0.361	0.565	0.317
1	53	199.64	0.837	1.683	1.896	0.419	0.843	0.950
1	54	221.25	0.891	1.835	0.795	0.403	0.829	0.359
1	55	194.33	0.839	1.839	0.525	0.432	0.946	0.270
1	56	210.67	0.948	1.462	5.427	0.450	0.694	2.576
1	57	217.61	0.813	1.921	0.661	0.374	0.883	0.304
1	58	219.98	0.685	1.825	0.584	0.311	0.830	0.265
1	61	201.35	0.751	1.786	0.772	0.373	0.887	0.383
1	62	227.29	0.869	1.992	0.570	0.382	0.876	0.251
1	63	204.64	0.876	1.772	0.644	0.428	0.866	0.315
1	64	188.95	0.868	1.721	0.574	0.459	0.911	0.304
1	65	242.73	0.864	1.805	0.757	0.356	0.744	0.312
1	66	171.46	0.699	1.656	0.628	0.408	0.966	0.366
1	69	235.40	0.986	1.786	0.650	0.419	0.759	0.276
1	70	218.91	0.907	1.739	0.681	0.414	0.794	0.311
1	71	224.61	0.818	1.904	0.562	0.364	0.848	0.250
1	72	216.04	0.793	1.854	0.642	0.367	0.858	0.297
1	73	204.43	0.876	1.861	0.621	0.429	0.910	0.304
1	74	183.09	0.802	1.781	0.515	0.438	0.973	0.281
1	75	212.39	0.763	1.954	0.641	0.359	0.920	0.302

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	OVARIES WEIGHT	% ADRENAL	% THYMUS	% OVARIES
1	27	232.36	0.045	0.049	0.095	0.019	0.021	0.041
1	28	243.19	0.083	0.310	0.125	0.034	0.127	0.051
1	29	210.50	0.094	0.169	0.150	0.045	0.080	0.071
1	30	210.00	0.079	0.191	0.117	0.038	0.091	0.056
1	31	229.20	0.067	0.303	0.110	0.029	0.132	0.048
1	32	204.56	0.066	0.265	0.120	0.032	0.130	0.059
1	33	207.89	0.056	0.104	0.088	0.027	0.050	0.042
1	34	224.26	0.068	0.182	0.123	0.030	0.081	0.055
1	35	179.07	0.080	0.123	0.123	0.045	0.069	0.069
1	36	223.84	0.065	0.099	0.116	0.029	0.044	0.052
1	37	211.27	0.104	0.093	0.087	0.049	0.044	0.041
1	38	282.40	0.074	0.117	0.107	0.026	0.041	0.038
1	39	200.17	0.053	0.199	0.210	0.026	0.099	0.105
1	40	245.55	0.073	0.179	0.144	0.030	0.073	0.059
1	41	219.39	0.042	0.109	0.108	0.019	0.050	0.049
1	42	219.88	0.075	0.230	0.127	0.034	0.105	0.058
1	43	190.16	0.074	0.172	0.175	0.039	0.090	0.092
1	44	213.81	0.069	0.359	0.118	0.032	0.168	0.055
1	45	199.42	0.068	0.147	0.113	0.034	0.074	0.057
1	46	221.20	0.073	0.067	0.116	0.033	0.030	0.052
1	47	216.23	0.068	0.144	0.116	0.031	0.067	0.054
1	48	220.89	0.071	0.114	0.134	0.032	0.052	0.061
1	50	215.08	0.077	0.088	0.136	0.036	0.041	0.063
1	51	199.03	0.059	0.154	0.085	0.030	0.077	0.043
1	52	271.14	0.075	0.172	0.100	0.028	0.063	0.037
1	53	199.64	0.066	0.112	0.118	0.033	0.056	0.059
1	54	221.25	0.100	0.154	0.101	0.045	0.070	0.046
1	55	194.33	0.076	0.174	0.145	0.039	0.090	0.075
1	56	210.67	0.092	0.148	0.079	0.044	0.070	0.037
1	57	217.61	0.087	0.166	0.124	0.040	0.076	0.057
1	58	219.98	0.081	0.190	0.149	0.037	0.086	0.068
1	61	201.35	0.082	0.214	0.145	0.041	0.106	0.072
1	62	227.29	0.088	0.294	0.131	0.039	0.129	0.058
1	63	204.64	0.089	0.328	0.100	0.043	0.160	0.049
1	64	188.95	0.080	0.067	0.087	0.042	0.035	0.046
1	65	242.73	0.095	0.286	0.160	0.039	0.118	0.066
1	66	171.46	0.061	0.166	0.124	0.036	0.097	0.072
1	69	235.40	0.097	0.136	0.559	0.041	0.058	0.237
1	70	218.91	0.073	0.175	0.081	0.033	0.080	0.037
1	71	224.61	0.074	0.196	0.152	0.033	0.087	0.068
1	72	216.04	0.087	0.269	0.162	0.040	0.125	0.075
1	73	204.43	0.066	0.157	0.141	0.032	0.077	0.069
1	74	183.09	0.151	0.172	0.198	0.082	0.094	0.108
1	75	212.39	0.081	0.118	0.142	0.038	0.056	0.067

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
2	104	235.63	1.821	1.237	6.701	0.773	0.525	2.844
2	105	265.12	2.111	1.300	7.669	0.796	0.490	2.893
2	107	275.75	2.020	1.244	8.344	0.733	0.451	3.026
2	108	156.03	1.797	1.565	5.234	1.152	1.003	3.354
2	109	296.28	2.503	1.611	14.274	0.845	0.544	4.818
2	111	217.70	1.827	1.602	7.914	0.839	0.736	3.635
2	112	201.08	1.884	2.461	9.062	0.937	1.224	4.507
2	115	253.32	1.732	1.178	6.885	0.684	0.465	2.718
2	116	170.80	1.523	2.704	15.616	0.892	1.583	9.143
2	117	271.44	1.882	1.304	7.851	0.693	0.480	2.892
2	118	259.49	1.970	1.346	7.535	0.759	0.519	2.904
2	120	220.50	1.815	1.683	8.794	0.823	0.763	3.988
2	121	274.74	1.975	1.292	6.666	0.719	0.470	2.426
2	122	262.60	1.923	1.279	7.215	0.732	0.487	2.748
2	123	181.53	1.999	1.828	7.583	1.101	1.007	4.177
2	124	253.69	1.941	1.220	6.992	0.765	0.481	2.756
2	125	209.53	1.542	1.038	6.035	0.736	0.495	2.880
2	126	220.26	1.659	1.174	5.917	0.753	0.533	2.686
2	128	283.71	1.913	1.203	7.326	0.674	0.424	2.582
2	129	264.73	1.838	1.235	7.406	0.694	0.467	2.798
2	130	271.00	1.008	1.148	7.327	0.372	0.424	2.704
2	131	206.38	1.666	1.585	5.927	0.807	0.768	2.872
2	132	261.53	1.908	1.909	8.402	0.730	0.730	3.213
2	133	152.18	1.570	1.143	6.035	1.032	0.751	3.966
2	134	242.73	1.742	1.106	6.821	0.718	0.456	2.810
2	135	247.13	1.714	1.348	6.863	0.694	0.545	2.777
2	137	284.68	1.046	1.363	8.723	0.367	0.479	3.064
2	138	244.15	1.747	1.350	7.278	0.716	0.553	2.981
2	139	233.02	2.032	1.235	7.394	0.872	0.530	3.173
2	140	274.16	1.916	1.269	7.697	0.699	0.463	2.807
2	142	179.87	1.583	1.274	7.511	0.880	0.708	4.176
2	143	284.37	2.028	1.641	8.043	0.713	0.577	2.828
2	144	281.86	2.179	1.234	8.532	0.773	0.438	3.027
2	145	248.26	1.672	1.029	6.973	0.673	0.414	2.809
2	146	247.93	1.715	1.087	6.480	0.692	0.438	2.614
2	147	200.49	1.796	1.939	7.864	0.896	0.967	3.922
2	148	260.99	1.956	1.264	7.178	0.749	0.484	2.750
2	149	286.85	1.918	1.180	8.573	0.669	0.411	2.989
2	150	246.18	1.731	1.153	6.402	0.703	0.468	2.601

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
2	104	235.63	0.886	1.904	0.566	0.376	0.808	0.240
2	105	265.12	0.967	1.876	0.726	0.365	0.708	0.274
2	107	275.75	0.933	1.918	0.744	0.338	0.696	0.270
2	108	156.03	0.802	1.457	0.464	0.514	0.934	0.297
2	109	296.28	0.888	1.723	4.184	0.300	0.582	1.412
2	111	217.70	1.781	1.100	4.902	0.818	0.505	2.252
2	112	201.08	1.022	1.946	9.735	0.508	0.968	4.841
2	115	253.32	0.890	1.869	0.720	0.351	0.738	0.284
2	116	170.80	0.628	1.844	12.983	0.368	1.080	7.601
2	117	271.44	0.812	1.822	0.609	0.299	0.671	0.224
2	118	259.49	0.988	1.762	0.742	0.381	0.679	0.286
2	120	220.50	0.866	1.847	2.288	0.393	0.838	1.038
2	121	274.74	0.984	1.832	0.655	0.358	0.667	0.238
2	122	262.60	0.952	1.846	0.478	0.363	0.703	0.182
2	123	181.53	0.918	1.708	13.555	0.506	0.941	7.467
2	124	253.69	0.867	1.618	0.582	0.342	0.638	0.229
2	125	209.53	0.867	2.046	0.497	0.414	0.976	0.237
2	126	220.26	0.847	1.770	0.399	0.385	0.804	0.181
2	128	283.71	1.000	1.837	0.501	0.352	0.647	0.177
2	129	264.73	0.901	1.780	0.495	0.340	0.672	0.187
2	130	271.00	0.985	1.871	0.533	0.363	0.690	0.197
2	131	206.38	0.937	1.864	0.916	0.454	0.903	0.444
2	132	261.53	1.073	1.888	5.591	0.410	0.722	2.138
2	133	152.18	0.691	1.765	0.337	0.454	1.160	0.221
2	134	242.73	0.927	1.789	0.629	0.382	0.737	0.259
2	135	247.13	0.786	1.834	0.518	0.318	0.742	0.210
2	137	284.68	0.970	1.957	0.743	0.341	0.687	0.261
2	138	244.15	0.779	1.719	0.609	0.319	0.704	0.249
2	139	233.02	0.831	1.806	0.741	0.357	0.775	0.318
2	140	274.16	0.924	1.879	0.779	0.337	0.685	0.284
2	142	179.87	0.592	1.918	0.371	0.329	1.066	0.206
2	143	284.37	0.929	1.911	0.599	0.327	0.672	0.211
2	144	281.86	0.976	1.796	0.509	0.346	0.637	0.181
2	145	248.26	0.839	1.752	0.602	0.338	0.706	0.242
2	146	247.93	0.834	1.809	0.543	0.336	0.730	0.219
2	147	200.49	0.999	1.893	10.989	0.498	0.944	5.481
2	148	260.99	0.923	1.850	0.548	0.354	0.709	0.210
2	149	286.85	0.904	1.628	0.542	0.315	0.568	0.189
2	150	246.18	0.807	1.819	0.681	0.328	0.739	0.277



# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	OVARIES WEIGHT	% ADRENAL	% THYMUS	% OVARIES
2	104	235.63	0.082	0.375	0.890	0.035	0.159	0.378
2	105	265.12	0.075	0.523	0.128	0.028	0.197	0.048
2	107	275.75	0.068	0.087	0.125	0.025	0.032	0.045
2	108	156.03	0.060	0.119	0.162	0.038	0.076	0.104
2	109	296.28	0.091	0.461	0.125	0.031	0.156	0.042
2	111	217.70	0.068	0.179	0.119	0.031	0.082	0.055
2	112	201.08	0.067	0.204	0.084	0.033	0.101	0.042
2	115	253.32	0.067	0.179	0.125	0.026	0.071	0.049
2	116	170.80	0.111	0.067	0.158	0.065	0.039	0.093
2	117	271.44	0.075	0.329	0.135	0.028	0.121	0.050
2	118	259.49	0.046	0.215	0.087	0.018	0.083	0.034
2	120	220.50	0.067	0.196	0.133	0.030	0.089	0.060
2	121	274.74	0.076	0.103	0.111	0.028	0.037	0.040
2	122	262.60	0.054	0.098	0.146	0.021	0.037	0.056
2	123	181.53	0.081	0.160	0.103	0.045	0.088	0.057
2	124	253.69	0.106	0.059	0.100	0.042	0.023	0.039
2	125	209.53	0.073	0.261	0.146	0.035	0.125	0.070
2	126	220.26	0.083	0.258	0.139	0.038	0.117	0.063
2	128	283.71	0.062	0.244	0.309	0.022	0.086	0.109
2	129	264.73	0.085	0.295	0.108	0.032	0.111	0.041
2	130	271.00	0.058	0.470	0.136	0.021	0.173	0.050
2	131	206.38	0.081	0.105	0.107	0.039	0.051	0.052
2	132	261.53	0.063	0.238	0.104	0.024	0.091	0.040
2	133	152.18	0.101	0.052	0.094	0.066	0.034	0.062
2	134	242.73	0.105	0.375	0.127	0.043	0.154	0.052
2	135	247.13	0.096	0.210	0.113	0.039	0.085	0.046
2	137	284.68	0.080	0.660	0.113	0.028	0.232	0.040
2	138	244.15	0.063	0.251	0.138	0.026	0.103	0.057
2	139	233.02	0.095	0.123	0.144	0.041	0.053	0.062
2	140	274.16	0.061	0.458	0.184	0.022	0.167	0.067
2	142	179.87	0.073	0.057	0.097	0.041	0.032	0.054
2	143	284.37	0.085	0.248	0.134	0.030	0.087	0.047
2	144	281.86	0.068	0.083	2.572	0.024	0.029	0.913
2	145	248.26	0.061	0.126	0.099	0.025	0.051	0.040
2	146	247.93	0.061	0.179	0.142	0.025	0.072	0.057
2	147	200.49	0.081	0.248	0.094	0.040	0.124	0.047
2	148	260.99	0.067	0.168	0.107	0.026	0.064	0.041
2	149	286.85	0.091	0.028	0.079	0.032	0.010	0.028
2	150	246.18	0.074	0.279	0.125	0.030	0.113	0.051

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
3	180	305.81	1.998	1.306	7.959	0.653	0.427	2.603
3	181	280.90	1.853	1.500	7.450	0.660	0.534	2.652
3	182	276.43	1.934	1.507	7.275	0.700	0.545	2.632
3	183	195.85	1.512	1.168	6.049	0.772	0.596	3.089
3	184	301.51	2.080	1.317	7.241	0.690	0.437	2.402
3	185	263.11	1.489	1.061	9.720	0.566	0.403	3.694
3	186	309.72	1.919	1.281	7.225	0.620	0.414	2.333
3	187	257.84	1.990	1.267	9.570	0.772	0.491	3.712
3	188	137.00	1.588	1.135	5.302	1.159	0.828	3.870
3	190	277.03	1.858	1.330	6.662	0.671	0.480	2.405
3	191	196.95	2.072	1.766	6.746	1.052	0.897	3.425
3	192	251.75	1.809	1.123	6.919	0.719	0.446	2.748
3	193	282.44	2.104	1.664	8.269	0.745	0.589	2.928
3	194	291.41	2.116	1.357	8.134	0.726	0.466	2.791
3	195	189.21	2.043	2.019	8.999	1.080	1.067	4.756
3	196	230.37	1.860	1.342	7.985	0.807	0.583	3.466
3	197	225.96	2.113	1.550	9.638	0.935	0.686	4.265
3	198	292.13	1.976	1.522	7.577	0.676	0.521	2.594
3	199	293.60	1.928	1.225	7.431	0.657	0.417	2.531
3	200	259.66	1.714	1.164	8.135	0.660	0.448	3.133
3	201	302.20	1.921	1.235	7.707	0.636	0.409	2.550
3	202	158.12	1.642	1.862	7.246	1.038	1.178	4.583
3	203	270.83	1.782	1.236	7.257	0.658	0.456	2.680
3	204	244.18	2.133	1.283	9.066	0.874	0.525	3.713
3	205	269.27	2.069	1.359	10.790	0.768	0.505	4.007
3	206	214.13	1.907	2.461	8.673	0.891	1.149	4.050
3	207	290.06	1.983	1.370	7.740	0.684	0.472	2.668
3	208	269.69	1.768	1.077	6.772	0.656	0.399	2.511
3	209	257.25	1.966	1.245	7.621	0.764	0.484	2.962
3	210	270.32	1.744	1.060	6.501	0.645	0.392	2.405
3	211	171.94	1.855	2.503	8.334	1.079	1.456	4.847
3	212	245.57	1.626	1.283	7.945	0.662	0.522	3.235
3	213	260.87	1.891	1.261	7.035	0.725	0.483	2.697
3	214	311.93	1.986	1.465	7.811	0.637	0.470	2.504
3	215	216.38	1.682	2.351	12.323	0.777	1.087	5.695
3	216	310.37	1.971	1.753	10.140	0.635	0.565	3.267
3	218	207.54	1.922	2.004	6.216	0.926	0.966	2.995
3	219	297.30	2.060	1.686	8.756	0.693	0.567	2.945
3	220	346.50	2.640	1.451	9.810	0.762	0.419	2.831
3	221	187.21	1.760	2.524	8.645	0.940	1.348	4.618
3	222	237.15	1.910	1.870	9.978	0.805	0.789	4.207
3	223	296.09	1.957	1.193	7.652	0.661	0.403	2.584
3	224	265.98	1.883	2.182	6.965	0.708	0.820	2.619
3	225	276.64	2.044	1.170	7.200	0.739	0.423	2.603

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
3	180	305.81	1.161	1.936	0.573	0.380	0.633	0.187
3	181	280.90	0.829	1.824	0.997	0.295	0.649	0.355
3	182	276.43	0.923	1.934	0.630	0.334	0.700	0.228
3	183	195.85	0.723	1.716	0.588	0.369	0.876	0.300
3	184	301.51	1.036	1.976	0.492	0.344	0.655	0.163
3	185	263.11	0.692	1.773	0.696	0.263	0.674	0.265
3	186	309.72	0.880	1.673	0.862	0.284	0.540	0.278
3	187	257.84	0.823	1.778	0.536	0.319	0.690	0.208
3	188	137.00	0.584	1.759	0.127	0.426	1.284	0.093
3	190	277.03	0.913	1.889	0.421	0.330	0.682	0.152
3	191	196.95	0.908	1.922	3.288	0.461	0.976	1.669
3	192	251.75	0.842	1.802	0.624	0.334	0.716	0.248
3	193	282.44	1.112	1.943	2.264	0.394	0.688	0.802
3	194	291.41	1.051	1.939	0.518	0.361	0.665	0.178
3	195	189.21	0.976	1.854	10.014	0.516	0.980	5.293
3	196	230.37	0.822	1.816	0.576	0.357	0.788	0.250
3	197	225.96	1.128	1.804	3.210	0.499	0.798	1.421
3	198	292.13	0.857	1.884	0.743	0.293	0.645	0.254
3	199	293.60	0.999	1.850	0.472	0.340	0.630	0.161
3	200	259.66	0.802	1.772	0.726	0.309	0.682	0.280
3	201	302.20	1.186	1.770	0.564	0.392	0.586	0.187
3	202	158.12	0.815	1.648	4.901	0.515	1.042	3.100
3	203	270.83	0.870	1.800	0.456	0.321	0.665	0.168
3	204	244.18	0.821	1.819	0.658	0.336	0.745	0.269
3	205	269.27	1.054	1.940	1.822	0.391	0.720	0.677
3	206	214.13	0.969	1.795	6.231	0.453	0.838	2.910
3	207	290.06	0.958	1.725	0.591	0.330	0.595	0.204
3	208	269.69	0.885	1.836	0.490	0.328	0.681	0.182
3	209	257.25	1.124	1.820	0.615	0.437	0.707	0.239
3	210	270.32	0.848	1.813	0.522	0.314	0.671	0.193
3	211	171.94	1.048	1.919	6.266	0.610	1.116	3.644
3	212	245.57	0.759	1.702	1.051	0.309	0.693	0.428
3	213	260.87	0.836	1.833	0.821	0.320	0.703	0.315
3	214	311.93	1.016	1.815	0.759	0.326	0.582	0.243
3	215	216.38	0.888	1.814	6.475	0.410	0.838	2.992
3	216	310.37	1.038	1.821	11.086	0.334	0.587	3.572
3	218	207.54	1.022	1.842	8.124	0.492	0.888	3.914
3	219	297.30	0.966	1.797	1.704	0.325	0.604	0.573
3	220	346.50	1.156	1.849	0.743	0.334	0.534	0.214
3	221	187.21	0.766	1.788	3.286	0.409	0.955	1.755
3	222	237.15	0.860	1.853	4.056	0.363	0.781	1.710
3	223	296.09	0.941	1.892	0.567	0.318	0.639	0.191
3	224	265.98	0.970	1.877	1.398	0.365	0.706	0.526
3	225	276.64	0.941	1.868	0.645	0.340	0.675	0.233

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	OVARIES WEIGHT	% ADRENAL	% THYMUS	% OVARIES
3	180	305.81	0.064	0.299	0.104	0.021	0.098	0.034
3	181	280.90	0.082	0.387	0.145	0.029	0.138	0.052
3	182	276.43	0.082	0.339	0.161	0.030	0.123	0.058
3	183	195.85	0.085	0.177	0.193	0.043	0.090	0.099
3	184	301.51	0.075	0.185	0.113	0.025	0.061	0.037
3	185	263.11	0.088	0.157	0.141	0.033	0.060	0.054
3	186	309.72	0.084	0.113	0.112	0.027	0.036	0.036
3	187	257.84	0.078	0.122	0.147	0.030	0.047	0.057
3	188	137.00	0.073	0.096	0.115	0.053	0.070	0.084
3	190	277.03	0.075	0.384	0.180	0.027	0.139	0.065
3	191	196.95	0.085	0.136	0.129	0.043	0.069	0.065
3	192	251.75	0.078	0.183	0.078	0.031	0.073	0.031
3	193	282.44	0.082	0.284	0.129	0.029	0.101	0.046
3	194	291.41	0.070	0.183	1.723	0.024	0.063	0.591
3	195	189.21	0.079	0.234	0.174	0.042	0.124	0.092
3	196	230.37	0.083	0.217	0.194	0.036	0.094	0.084
3	197	225.96	0.088	0.157	0.124	0.039	0.069	0.055
3	198	292.13	0.091	0.285	0.190	0.031	0.098	0.065
3	199	293.60	0.064	0.097	0.115	0.022	0.033	0.039
3	200	259.66	0.068	0.200	0.132	0.026	0.077	0.051
3	201	302.20	0.057	0.190	0.102	0.019	0.063	0.034
3	202	158.12	0.075	0.162	0.096	0.047	0.102	0.061
3	203	270.83	0.050	0.193	0.093	0.018	0.071	0.034
3	204	244.18	0.079	0.172	0.124	0.032	0.070	0.051
3	205	269.27	0.090	0.171	0.144	0.033	0.064	0.053
3	206	214.13	0.073	0.203	0.110	0.034	0.095	0.051
3	207	290.06	0.069	0.098	0.095	0.024	0.034	0.033
3	208	269.69	0.059	0.387	0.129	0.022	0.143	0.048
3	209	257.25	0.075	0.132	0.311	0.029	0.051	0.121
3	210	270.32	0.068	0.261	0.097	0.025	0.097	0.036
3	211	171.94	0.087	0.481	0.056	0.051	0.280	0.033
3	212	245.57	0.090	0.233	0.138	0.037	0.095	0.056
3	213	260.87	0.067	0.296	0.149	0.026	0.113	0.057
3	214	311.93	0.077	0.406	0.132	0.025	0.130	0.042
3	215	216.38	0.083	0.121	0.106	0.038	0.056	0.049
3	216	310.37	0.104	0.267	0.121	0.034	0.086	0.039
3	218	207.54	0.064	0.155	0.090	0.031	0.075	0.043
3	219	297.30	0.091	0.527	0.152	0.031	0.177	0.051
3	220	346.50	0.081	0.128	2.793	0.023	0.037	0.806
3	221	187.21	0.068	0.293	0.079	0.036	0.157	0.042
3	222	237.15	0.063	0.361	0.140	0.027	0.152	0.059
3	223	296.09	0.062	0.215	0.113	0.021	0.073	0.038
3	224	265.98	0.088	0.367	0.163	0.033	0.138	0.061
3	225	276.64	0.640	0.115	0.074	0.231	0.042	0.027

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
4	255	281.60	1.840	1.230	6.768	0.653	0.437	2.403
4	256	309.50	2.034	1.401	8.234	0.657	0.453	2.660
4	257	268.99	1.730	1.341	7.004	0.643	0.499	2.604
4	258	273.03	2.086	1.545	7.732	0.764	0.566	2.832
4	259	174.24	1.750	3.802	6.841	1.004	2.182	3.926
4	260	204.76	1.739	1.335	6.845	0.849	0.652	3.343
4	261	252.61	2.636	2.775	13.245	1.044	1.099	5.243
4	262	197.30	1.701	1.495	7.264	0.862	0.758	3.682
4	263	274.30	1.916	1.296	7.085	0.699	0.472	2.583
4	264	262.35	1.747	1.308	6.361	0.666	0.499	2.425
4	265	288.32	2.368	1.555	8.349	0.821	0.539	2.896
4	266	216.20	1.427	1.243	5.111	0.660	0.575	2.364
4	267	285.63	1.974	1.416	7.415	0.691	0.496	2.596
4	268	261.13	1.743	1.180	7.248	0.667	0.452	2.776
4	269	225.90	1.916	1.596	7.574	0.848	0.707	3.353
4	270	292.62	2.007	1.253	8.058	0.686	0.428	2.754
4	271	296.77	2.036	1.486	7.832	0.686	0.501	2.639
4	272	167.40	1.469	1.065	4.925	0.878	0.636	2.942
4	273	279.34	2.041	1.416	8.421	0.731	0.507	3.015
4	274	255.37	1.898	1.128	6.432	0.743	0.442	2.519
4	275	346.42	1.899	1.195	13.610	0.548	0.345	3.929
4	277	195.77	1.966	2.547	7.457	1.004	1.301	3.809
4	279	302.95	1.909	1.126	9.473	0.630	0.372	3.127
4	281	256.93	1.844	1.144	7.359	0.718	0.445	2.864
4	282	246.86	1.830	1.100	6.851	0.741	0.446	2.775
4	283	275.14	2.031	1.958	8.151	0.738	0.712	2.962
4	285	242.87	1.767	1.734	8.534	0.728	0.714	3.514

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
4	255	281.60	0.865	1.808	0.996	0.307	0.642	0.354
4	256	309.50	1.019	1.801	0.527	0.329	0.582	0.170
4	257	268.99	0.859	1.790	0.807	0.319	0.665	0.300
4	258	273.03	0.965	1.840	0.668	0.353	0.674	0.245
4	259	174.24	0.723	1.772	8.193	0.415	1.017	4.702
4	260	204.76	0.756	1.728	0.355	0.369	0.844	0.173
4	261	252.61	0.920	1.596	0.551	0.364	0.632	0.218
4	262	197.30	0.797	1.815	1.167	0.404	0.920	0.591
4	263	274.30	0.872	1.931	0.548	0.318	0.704	0.200
4	264	262.35	0.810	1.846	0.601	0.309	0.704	0.229
4	265	288.32	1.064	1.916	0.558	0.369	0.665	0.194
4	266	216.20	0.641	2.029	0.615	0.296	0.938	0.284
4	267	285.63	0.925	1.807	0.662	0.324	0.633	0.232
4	268	261.13	1.076	1.833	0.630	0.412	0.702	0.241
4	269	225.90	1.095	2.007	0.850	0.485	0.888	0.376
4	270	292.62	0.976	1.872	0.842	0.334	0.640	0.288
4	271	296.77	0.887	1.866	0.614	0.299	0.629	0.207
4	272	167.40	0.624	1.871	0.290	0.373	1.118	0.173
4	273	279.34	0.973	1.760	0.640	0.348	0.630	0.229
4	274	255.37	0.937	1.871	0.585	0.367	0.733	0.229
4	275	346.42	0.813	1.692	0.735	0.235	0.488	0.212
4	277	195.77	0.987	1.881	10.389	0.504	0.961	5.307
4	279	302.95	0.774	1.689	0.925	0.255	0.558	0.305
4	281	256.93	0.968	1.869	0.669	0.377	0.727	0.260
4	282	246.86	0.835	1.847	0.562	0.338	0.748	0.228
4	283	275.14	1.140	1.921	2.508	0.414	0.698	0.912
4	285	242.87	1.150	1.716	5.674	0.474	0.707	2.336

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	OVARIES WEIGHT	% ADRENAL	% THYMUS	% OVARIES
4	255	281.60	0.049	0.109	0.105	0.017	0.039	0.037
4	256	309.50	0.078	0.226	0.101	0.025	0.073	0.033
4	257	268.99	0.082	0.350	0.139	0.030	0.130	0.052
4	258	273.03	0.100	0.362	0.178	0.037	0.133	0.065
4	259	174.24	0.098	0.312	0.069	0.056	0.179	0.040
4	260	204.76	0.089	0.129	0.117	0.043	0.063	0.057
4	261	252.61	0.078	0.344	0.138	0.031	0.136	0.055
4	262	197.30	0.038	0.158	0.322	0.019	0.080	0.163
4	263	274.30	0.076	0.339	0.165	0.028	0.124	0.060
4	264	262.35	0.096	0.208	0.135	0.037	0.079	0.051
4	265	288.32	0.090	0.305	0.171	0.031	0.106	0.059
4	266	216.20	0.051	0.235	0.102	0.024	0.109	0.047
4	267	285.63	0.077	0.361	0.116	0.027	0.126	0.041
4	268	261.13	0.066	0.223	0.114	0.025	0.085	0.044
4	269	225.90	0.123	0.411	0.113	0.054	0.182	0.050
4	270	292.62	0.067	0.115	0.096	0.023	0.039	0.033
4	271	296.77	0.080	0.278	0.194	0.027	0.094	0.065
4	272	167.40	0.094	0.148	0.109	0.056	0.088	0.065
4	273	279.34	0.106	0.398	0.172	0.038	0.142	0.062
4	274	255.37	0.061	0.271	0.125	0.024	0.106	0.049
4	275	346.42	0.072	0.174	0.111	0.021	0.050	0.032
4	277	195.77	0.071	0.249	0.110	0.036	0.127	0.056
4	279	302.95	0.080	0.178	0.077	0.026	0.059	0.025
4	281	256.93	0.070	0.585	0.113	0.027	0.228	0.044
4	282	246.86	0.059	0.046	0.089	0.024	0.019	0.036
4	283	275.14	0.092	0.393	0.226	0.033	0.143	0.082
4	285	242.87	0.100	0.116	0.113	0.041	0.048	0.047

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
5	315	320.23	2.813	1.779	10.497	0.878	0.556	3.278
5	316	285.12	3.268	2.088	9.844	1.146	0.732	3.453
5	317	324.97	2.566	1.929	10.199	0.790	0.594	3.138
5	318	311.56	2.500	1.653	9.075	0.802	0.531	2.913
5	319	228.91	2.201	1.694	8.217	0.962	0.740	3.590
5	320	324.43	2.430	1.627	9.281	0.749	0.501	2.861
5	321	*	2.204	2.836	5.568	*	*	*
5	324	351.65	2.777	1.732	8.671	0.790	0.493	2.466
5	325	300.94	2.540	1.784	9.247	0.844	0.593	3.073
5	327	241.96	2.467	1.490	8.951	1.020	0.616	3.699
5	328	339.93	2.846	1.649	12.322	0.837	0.485	3.625
5	329	415.65	2.946	1.698	11.745	0.709	0.409	2.826
5	330	379.54	2.706	1.640	11.403	0.713	0.432	3.004
5	331	329.47	2.713	1.956	10.607	0.823	0.594	3.219
5	332	325.73	2.623	1.723	9.678	0.805	0.529	2.971
5	333	342.26	2.895	1.932	11.170	0.846	0.564	3.264
5	334	235.08	2.130	1.752	6.353	0.906	0.745	2.702
5	335	347.69	2.650	1.817	10.335	0.762	0.523	2.972
5	337	267.32	2.410	1.997	7.821	0.902	0.747	2.926
5	338	278.82	2.334	1.652	8.189	0.837	0.592	2.937
5	340	245.29	2.136	1.485	7.840	0.871	0.605	3.196
5	341	323.69	2.703	1.941	13.350	0.835	0.600	4.124
5	342	364.51	3.031	1.640	12.880	0.832	0.450	3.534
5	343	456.13	2.609	1.696	11.896	0.572	0.372	2.608
5	344	352.63	2.837	1.766	10.923	0.805	0.501	3.098
5	345	259.01	2.288	1.838	8.293	0.883	0.710	3.202
5	346	229.96	2.401	1.619	6.778	1.044	0.704	2.947
5	347	309.60	2.348	1.754	8.551	0.758	0.567	2.762
5	348	328.45	2.771	1.764	10.794	0.844	0.537	3.286
5	349	356.00	2.781	1.626	11.384	0.781	0.457	3.198
5	350	329.4	2.576	1.657	11.034	0.782	0.503	3.350
5	352	329.18	2.896	2.034	10.376	0.880	0.618	3.152
5	353	408.00	2.984	1.680	12.002	0.731	0.412	2.942
5	354	351.40	1.301	1.843	12.171	0.370	0.524	3.464
5	356	321.73	2.675	1.708	9.891	0.831	0.531	3.074
5	357	278.80	2.516	1.715	9.320	0.902	0.615	3.343

\*Not available



# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
5	315	320.23	1.102	1.092	0.907	0.344	0.341	0.283
5	316	285.12	0.963	2.022	2.607	0.338	0.709	0.914
5	317	324.97	1.093	2.001	0.934	0.336	0.616	0.287
5	318	311.56	1.190	1.989	0.776	0.382	0.638	0.249
5	319	228.91	0.827	1.845	0.385	0.361	0.806	0.168
5	320	324.43	1.255	2.003	0.939	0.387	0.617	0.289
5	321	*	0.953	1.905	0.626	*	*	*
5	324	351.65	1.294	2.135	1.119	0.368	0.607	0.318
5	325	300.94	1.087	2.115	1.012	0.361	0.703	0.336
5	327	241.96	1.025	1.716	1.002	0.424	0.709	0.414
5	328	339.93	1.046	2.010	1.207	0.308	0.591	0.355
5	329	415.65	1.025	1.973	0.723	0.247	0.475	0.174
5	330	379.54	1.231	2.137	1.119	0.324	0.563	0.295
5	331	329.47	1.076	2.026	1.042	0.327	0.615	0.316
5	332	325.73	1.161	1.907	0.972	0.356	0.585	0.298
5	333	342.26	1.063	2.034	1.168	0.311	0.594	0.341
5	334	235.08	1.018	1.989	0.563	0.433	0.846	0.239
5	335	347.69	1.182	2.115	0.802	0.340	0.608	0.231
5	337	267.32	1.027	1.968	0.667	0.384	0.736	0.250
5	338	278.82	0.969	2.006	0.628	0.348	0.719	0.225
5	340	245.29	0.970	1.871	0.571	0.395	0.763	0.233
5	341	323.69	1.114	1.968	1.100	0.344	0.608	0.340
5	342	364.51	1.324	2.051	1.311	0.363	0.563	0.360
5	343	456.13	1.210	2.126	0.875	0.265	0.466	0.192
5	344	352.63	1.182	1.903	0.982	0.335	0.540	0.278
5	345	259.01	1.008	1.956	0.634	0.389	0.755	0.245
5	346	229.96	1.123	1.969	0.454	0.488	0.856	0.197
5	347	309.60	1.215	2.062	0.792	0.392	0.666	0.256
5	348	328.45	1.115	1.896	0.978	0.339	0.577	0.298
5	349	356.00	1.343	1.877	1.096	0.377	0.527	0.308
5	350	329.4	1.143	1.716	0.949	0.347	0.521	0.288
5	352	329.18	1.065	1.951	1.145	0.324	0.593	0.348
5	353	408.00	1.320	2.146	1.400	0.324	0.526	0.343
5	354	351.40	1.050	1.967	1.283	0.299	0.560	0.365
5	356	321.73	1.055	2.052	0.991	0.328	0.638	0.308
5	357	278.80	1.035	1.963	0.888	0.371	0.704	0.319

\*Not available

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	TESTES WEIGHT	% ADRENAL	% THYMUS	% TESTES
5	315	320.23	0.090	0.282	5.258	0.028	0.088	1.642
5	316	285.12	0.070	0.216	4.471	0.025	0.076	1.568
5	317	324.97	0.080	0.299	5.192	0.025	0.092	1.598
5	318	311.56	0.092	0.345	2.327	0.030	0.111	0.747
5	319	228.91	0.097	0.191	1.458	0.042	0.083	0.637
5	320	324.43	0.066	0.245	6.234	0.020	0.076	1.922
5	321	*	0.105	0.156	*	*	*	*
5	324	351.65	0.090	0.468	6.749	0.026	0.133	1.919
5	325	300.94	0.090	0.234	6.055	0.030	0.078	2.012
5	327	241.96	0.086	0.226	3.010	0.036	0.093	1.244
5	328	339.93	0.066	0.132	6.940	0.019	0.039	2.042
5	329	415.65	0.113	0.215	6.550	0.027	0.052	1.576
5	330	379.54	0.089	0.421	8.679	0.023	0.111	2.287
5	331	329.47	0.086	0.166	7.828	0.026	0.050	2.376
5	332	325.73	0.080	0.084	7.745	0.025	0.026	2.378
5	333	342.26	0.099	0.292	7.307	0.029	0.085	2.135
5	334	235.08	0.064	0.090	3.621	0.027	0.038	1.540
5	335	347.69	0.075	0.460	3.410	0.022	0.132	0.981
5	337	267.32	0.084	0.162	3.765	0.031	0.061	1.408
5	338	278.82	0.069	0.258	1.598	0.025	0.093	0.573
5	340	245.29	0.070	0.254	4.164	0.029	0.104	1.698
5	341	323.69	0.078	0.363	3.316	0.024	0.112	1.024
5	342	364.51	0.083	0.452	7.989	0.023	0.124	2.192
5	343	456.13	0.076	0.725	4.626	0.017	0.159	1.014
5	344	352.63	0.079	0.089	15.504	0.022	0.025	4.397
5	345	259.01	0.094	0.103	5.386	0.036	0.040	2.079
5	346	229.96	0.093	0.134	3.898	0.040	0.058	1.695
5	347	309.60	0.080	0.446	3.131	0.026	0.144	1.011
5	348	328.45	0.085	0.209	8.710	0.026	0.064	2.652
5	349	356.00	0.083	0.082	7.364	0.023	0.023	2.069
5	350	329.4	0.067	0.102	6.061	0.020	0.031	1.840
5	352	329.18	0.083	0.332	9.042	0.025	0.101	2.747
5	353	408.00	0.059	0.670	2.150	0.014	0.164	0.527
5	354	351.40	0.074	0.255	7.034	0.021	0.073	2.002
5	356	321.73	0.073	0.308	10.342	0.023	0.096	3.214
5	357	278.80	0.090	0.278	6.564	0.032	0.100	2.354

\*Not available

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
6	391	383.40	3.044	1.744	11.614	0.794	0.455	3.029
6	392	351.41	3.270	2.693	14.780	0.931	0.766	4.206
6	393	249.80	2.400	2.230	6.432	0.961	0.893	2.575
6	395	367.75	3.206	1.775	11.670	0.872	0.483	3.173
6	398	376.28	3.023	1.834	13.397	0.803	0.487	3.560
6	399	386.47	3.143	1.723	13.207	0.813	0.446	3.417
6	400	344.46	2.858	1.662	13.316	0.830	0.482	3.866
6	402	372.06	3.333	1.768	12.724	0.896	0.475	3.420
6	403	348.70	2.866	1.870	11.048	0.822	0.536	3.168
6	404	358.50	2.980	1.613	12.173	0.831	0.450	3.396
6	405	*	3.366	3.187	12.815	*	*	*
6	406	355.08	2.965	2.130	12.023	0.835	0.600	3.386
6	407	383.16	2.824	2.205	11.875	0.737	0.575	3.099
6	408	345.26	2.732	1.821	11.022	0.791	0.527	3.192
6	410	371.89	1.470	1.963	10.995	0.395	0.528	2.957
6	411	286.36	2.974	1.532	9.692	1.039	0.535	3.385
6	413	358.63	3.099	2.200	12.562	0.864	0.613	3.503
6	414	407.45	3.181	1.716	12.789	0.781	0.421	3.139
6	416	318.63	2.941	1.861	10.615	0.923	0.584	3.331
6	417	358.77	3.010	1.764	11.956	0.839	0.492	3.332
6	418	319.62	2.807	3.702	13.097	0.878	1.158	4.098
6	419	375.35	2.853	1.590	10.477	0.760	0.424	2.791
6	420	381.68	3.198	1.883	13.351	0.838	0.493	3.498
6	422	374.65	3.099	1.744	11.989	0.827	0.466	3.200
6	423	338.13	4.046	1.573	14.872	1.197	0.465	4.398
6	425	277.94	1.569	1.780	13.777	0.565	0.640	4.957
6	426	393.26	3.171	1.829	11.701	0.806	0.465	2.975
6	427	368.70	2.931	1.678	10.221	0.795	0.455	2.772
6	428	379.31	2.965	1.939	11.671	0.782	0.511	3.077
6	429	377.90	3.608	2.514	14.095	0.955	0.665	3.730
6	430	281.91	3.858	1.506	12.875	1.369	0.534	4.567
6	431	354.25	2.895	1.713	11.035	0.817	0.484	3.115
6	432	295.63	2.003	2.121	10.153	0.678	0.717	3.434
6	433	344.46	4.325	2.381	12.389	1.256	0.691	3.597
6	434	390.50	2.846	1.992	11.633	0.729	0.510	2.979
6	435	405.15	3.620	2.063	13.766	0.893	0.509	3.398

\*Not available

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
6	391	383.40	1.295	2.095	1.233	0.338	0.546	0.322
6	392	351.41	1.099	2.063	6.016	0.313	0.587	1.712
6	393	249.80	0.950	1.886	0.312	0.380	0.755	0.125
6	395	367.75	1.274	1.796	0.921	0.346	0.488	0.250
6	398	376.28	1.283	1.879	1.355	0.341	0.499	0.360
6	399	386.47	1.289	2.049	1.735	0.334	0.530	0.449
6	400	344.46	1.191	1.879	1.156	0.346	0.545	0.336
6	402	372.06	1.308	1.968	1.379	0.352	0.529	0.371
6	403	348.70	1.217	2.062	0.924	0.349	0.591	0.265
6	404	358.50	1.319	1.956	1.285	0.368	0.546	0.358
6	405	*	1.214	*	3.121	*	*	*
6	406	355.08	1.184	2.038	1.029	0.333	0.574	0.290
6	407	383.16	1.343	2.089	1.267	0.351	0.545	0.331
6	408	345.26	1.222	2.042	1.441	0.354	0.591	0.417
6	410	371.89	1.182	1.998	1.221	0.318	0.537	0.328
6	411	286.36	1.204	1.770	0.882	0.420	0.618	0.308
6	413	358.63	1.132	2.021	1.630	0.316	0.564	0.455
6	414	407.45	1.283	1.996	1.349	0.315	0.490	0.331
6	416	318.63	1.076	2.115	0.970	0.338	0.664	0.304
6	417	358.77	1.393	1.987	0.967	0.388	0.554	0.270
6	418	319.62	1.076	1.931	9.290	0.337	0.604	2.907
6	419	375.35	1.239	2.133	1.257	0.330	0.568	0.335
6	420	381.68	1.373	2.171	1.311	0.360	0.569	0.343
6	422	374.65	1.374	2.048	1.428	0.367	0.547	0.381
6	423	338.13	1.216	1.846	1.155	0.360	0.546	0.342
6	425	277.94	1.254	2.021	0.958	0.451	0.727	0.345
6	426	393.26	1.189	2.072	0.897	0.302	0.527	0.228
6	427	368.70	1.098	2.172	0.973	0.298	0.589	0.264
6	428	379.31	1.220	2.021	2.481	0.322	0.533	0.654
6	429	377.90	1.372	2.033	1.650	0.363	0.538	0.437
6	430	281.91	1.064	1.886	0.532	0.377	0.669	0.189
6	431	354.25	1.033	1.930	0.898	0.292	0.545	0.253
6	432	295.63	0.938	2.014	0.611	0.317	0.681	0.207
6	433	344.46	1.309	2.436	1.311	0.380	0.707	0.381
6	434	390.50	1.248	2.129	0.963	0.320	0.545	0.247
6	435	405.15	1.493	1.965	1.219	0.369	0.485	0.301

\*Not available

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	TESTES WEIGHT	% ADRENAL	% THYMUS	% TESTES
6	391	383.40	0.091	0.728	7.742	0.024	0.190	2.019
6	392	351.41	0.090	0.303	4.821	0.026	0.086	1.372
6	393	249.80	0.084	0.077	3.750	0.034	0.031	1.501
6	395	367.75	0.075	0.233	4.005	0.020	0.063	1.089
6	398	376.28	0.073	0.203	6.892	0.019	0.054	1.832
6	399	386.47	0.122	0.514	6.826	0.032	0.133	1.766
6	400	344.46	0.055	0.221	7.488	0.016	0.064	2.174
6	402	372.06	0.072	0.102	5.867	0.019	0.027	1.577
6	403	348.70	0.082	0.399	5.845	0.024	0.114	1.676
6	404	358.50	0.062	0.307	6.039	0.017	0.086	1.685
6	405	*	0.166	0.175	2.857	*	*	*
6	406	355.08	0.064	0.385	4.913	0.018	0.108	1.384
6	407	383.16	0.093	0.575	5.547	0.024	0.150	1.448
6	408	345.26	0.114	0.321	8.807	0.033	0.093	2.551
6	410	371.89	0.071	0.356	8.044	0.019	0.096	2.163
6	411	286.36	0.082	0.097	2.181	0.029	0.034	0.762
6	413	358.63	0.078	0.354	5.215	0.022	0.099	1.454
6	414	407.45	0.067	0.125	12.373	0.016	0.031	3.037
6	416	318.63	0.094	0.562	3.247	0.030	0.176	1.019
6	417	358.77	0.282	0.204	6.921	0.079	0.057	1.929
6	418	319.62	0.105	0.399	3.383	0.033	0.125	1.058
6	419	375.35	0.081	0.217	7.449	0.022	0.058	1.985
6	420	381.68	0.063	0.442	8.915	0.017	0.116	2.336
6	422	374.65	0.076	0.174	8.480	0.020	0.046	2.263
6	423	338.13	0.094	0.318	3.868	0.028	0.094	1.144
6	425	277.94	0.087	0.179	5.546	0.031	0.064	1.995
6	426	393.26	0.084	0.187	3.592	0.021	0.048	0.913
6	427	368.70	0.081	0.367	5.132	0.022	0.100	1.392
6	428	379.31	0.078	0.239	7.191	0.021	0.063	1.896
6	429	377.90	0.086	0.393	8.340	0.023	0.104	2.207
6	430	281.91	0.050	0.304	2.660	0.018	0.108	0.944
6	431	354.25	0.070	0.108	6.287	0.020	0.030	1.775
6	432	295.63	0.049	0.217	1.196	0.017	0.073	0.405
6	433	344.46	0.118	0.320	7.070	0.034	0.093	2.052
6	434	390.50	0.074	0.424	6.941	0.019	0.109	1.777
6	435	405.15	0.100	0.224	3.453	0.025	0.055	0.852

\*Not available

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
7	465	365.37	2.599	1.852	9.460	0.711	0.507	2.589
7	466	264.44	2.787	1.724	9.637	1.054	0.652	3.644
7	467	249.54	2.303	3.251	15.518	0.923	1.303	6.219
7	468	405.75	2.797	2.027	11.815	0.689	0.500	2.912
7	469	340.38	2.726	1.768	10.765	0.801	0.519	3.163
7	470	229.60	2.058	1.472	5.512	0.896	0.641	2.401
7	471	245.03	2.333	1.477	6.347	0.952	0.603	2.590
7	472	371.53	3.416	2.101	14.710	0.919	0.565	3.959
7	473	300.45	2.998	3.343	20.198	0.998	1.113	6.723
7	474	383.62	3.292	2.107	13.900	0.858	0.549	3.623
7	475	369.33	3.715	2.355	15.587	1.006	0.638	4.220
7	476	622.78	2.672	1.491	11.100	0.429	0.239	1.782
7	478	302.41	2.438	4.093	12.890	0.806	1.353	4.262
7	481	321.36	2.910	2.959	11.526	0.906	0.921	3.587
7	482	391.48	3.224	1.882	16.154	0.824	0.481	4.126
7	483	340.40	2.838	3.004	12.457	0.834	0.882	3.660
7	484	223.48	2.510	3.130	6.811	1.123	1.401	3.048
7	485	355.41	3.467	1.732	15.635	0.975	0.487	4.399
7	486	232.46	3.555	1.722	9.630	1.529	0.741	4.143
7	491	399.32	3.202	1.547	13.501	0.802	0.387	3.381
7	492	290.32	2.696	1.487	9.868	0.929	0.512	3.399
7	493	398.51	3.185	1.798	13.642	0.799	0.451	3.423
7	494	306.36	2.590	1.803	9.979	0.845	0.589	3.257
7	496	355.22	2.613	1.489	9.520	0.736	0.419	2.680
7	499	398.44	3.358	2.028	15.006	0.843	0.509	3.766
7	500	546.57	2.500	1.591	10.217	0.457	0.291	1.869
7	501	252.43	2.518	2.830	10.805	0.998	1.121	4.280
7	502	360.19	3.130	3.138	14.155	0.869	0.871	3.930
7	503	339.78	2.833	2.242	9.285	0.834	0.660	2.733
7	505	282.57	3.215	1.354	10.998	1.138	0.479	3.892
7	506	440.19	3.940	1.936	16.886	0.895	0.440	3.836
7	507	312.28	2.885	4.680	12.967	0.924	1.499	4.152
7	508	355.43	3.002	1.643	12.731	0.845	0.462	3.582
7	509	234.06	2.503	2.120	8.045	1.069	0.906	3.437
7	510	387.42	3.223	5.711	11.252	0.832	1.474	2.904

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
7	465	365.37	1.046	1.943	1.000	0.286	0.532	0.274
7	466	264.44	0.966	1.955	0.681	0.365	0.739	0.258
7	467	249.54	1.133	1.935	11.287	0.454	0.775	4.523
7	468	405.75	1.167	1.965	1.556	0.288	0.484	0.383
7	469	340.38	1.443	2.019	1.289	0.424	0.593	0.379
7	470	229.60	0.840	1.972	0.259	0.366	0.859	0.113
7	471	245.03	0.724	1.784	0.366	0.295	0.728	0.149
7	472	371.53	1.378	2.063	1.453	0.371	0.555	0.391
7	473	300.45	0.923	1.801	5.208	0.307	0.599	1.733
7	474	383.62	1.295	2.007	2.385	0.338	0.523	0.622
7	475	369.33	1.431	2.106	1.310	0.387	0.570	0.355
7	476	622.78	1.121	1.842	0.921	0.180	0.296	0.148
7	478	302.41	0.986	2.046	5.003	0.326	0.677	1.654
7	481	321.36	1.585	1.989	12.042	0.493	0.619	3.747
7	482	391.48	1.166	1.979	1.402	0.298	0.506	0.358
7	483	340.40	1.169	2.092	9.689	0.343	0.615	2.846
7	484	223.48	0.868	1.973	0.265	0.388	0.883	0.119
7	485	355.41	1.688	2.135	0.918	0.475	0.601	0.258
7	486	232.46	0.920	1.928	0.644	0.396	0.829	0.277
7	491	399.32	1.443	1.680	1.414	0.361	0.421	0.354
7	492	290.32	1.077	1.749	1.356	0.371	0.602	0.467
7	493	398.51	1.159	1.782	1.202	0.291	0.447	0.302
7	494	306.36	1.467	2.030	1.373	0.479	0.663	0.448
7	496	355.22	1.272	1.932	1.214	0.358	0.544	0.342
7	499	398.44	1.316	1.959	1.832	0.330	0.492	0.460
7	500	546.57	1.288	1.935	1.427	0.236	0.354	0.261
7	501	252.43	1.354	1.983	10.691	0.536	0.786	4.235
7	502	360.19	1.255	1.779	5.954	0.348	0.494	1.653
7	503	339.78	1.257	2.043	0.990	0.370	0.601	0.291
7	505	282.57	1.029	1.842	0.794	0.364	0.652	0.281
7	506	440.19	1.450	1.881	1.574	0.329	0.427	0.358
7	507	312.28	1.390	1.881	18.262	0.445	0.602	5.848
7	508	355.43	1.291	2.065	1.302	0.363	0.581	0.366
7	509	234.06	1.684	1.992	0.474	0.719	0.851	0.203
7	510	387.42	1.196	1.876	2.166	0.309	0.484	0.559

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	TESTES WEIGHT	% ADRENAL	% THYMUS	% TESTES
7	465	365.37	0.084	0.349	6.565	0.023	0.096	1.797
7	466	264.44	0.112	0.106	2.323	0.042	0.040	0.878
7	467	249.54	0.096	0.232	2.665	0.038	0.093	1.068
7	468	405.75	0.074	0.464	8.229	0.018	0.114	2.028
7	469	340.38	0.087	0.150	5.976	0.026	0.044	1.756
7	470	229.60	0.079	0.114	4.067	0.034	0.050	1.771
7	471	245.03	0.060	0.148	3.810	0.024	0.060	1.555
7	472	371.53	0.089	0.169	6.156	0.024	0.045	1.657
7	473	300.45	0.164	0.473	3.635	0.055	0.157	1.210
7	474	383.62	0.084	0.421	7.377	0.022	0.110	1.923
7	475	369.33	0.080	0.369	9.241	0.022	0.100	2.502
7	476	622.78	0.077	0.249	10.599	0.012	0.040	1.702
7	478	302.41	0.096	0.307	6.215	0.032	0.102	2.055
7	481	321.36	0.122	0.950	2.894	0.038	0.296	0.901
7	482	391.48	0.069	0.343	9.072	0.018	0.088	2.317
7	483	340.40	0.129	0.428	4.081	0.038	0.126	1.199
7	484	223.48	0.088	*	3.130	0.039	*	1.401
7	485	355.41	0.057	0.235	5.026	0.016	0.066	1.414
7	486	232.46	0.105	0.201	1.769	0.045	0.086	0.761
7	491	399.32	0.084	0.184	7.673	0.021	0.046	1.922
7	492	290.32	0.072	0.196	5.024	0.025	0.068	1.731
7	493	398.51	0.085	0.187	7.591	0.021	0.047	1.905
7	494	306.36	0.109	0.277	1.985	0.036	0.090	0.648
7	496	355.22	0.072	0.230	6.516	0.020	0.065	1.834
7	499	398.44	0.075	0.141	7.861	0.019	0.035	1.973
7	500	546.57	0.057	0.240	6.382	0.010	0.044	1.168
7	501	252.43	0.076	0.262	2.833	0.030	0.104	1.122
7	502	360.19	0.080	0.483	3.435	0.022	0.134	0.954
7	503	339.78	0.089	0.254	6.238	0.026	0.075	1.836
7	505	282.57	0.077	0.140	2.614	0.027	0.050	0.925
7	506	440.19	0.086	0.323	7.739	0.020	0.073	1.758
7	507	312.28	0.068	0.336	1.776	0.022	0.108	0.569
7	508	355.43	0.084	0.430	7.809	0.024	0.121	2.197
7	509	234.06	0.078	0.229	2.079	0.033	0.098	0.888
7	510	387.42	0.060	*	6.907	0.015	*	1.783

\* Not available



# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
8	541	366.07	2.949	2.126	12.650	0.806	0.581	3.456
8	542	337.84	2.541	1.431	10.246	0.752	0.424	3.033
8	543	343.00	2.845	1.774	9.821	0.829	0.517	2.863
8	544	414.45	2.857	2.267	14.739	0.689	0.547	3.556
8	545	320.82	2.591	1.839	11.483	0.808	0.573	3.579
8	546	257.09	2.709	2.272	15.803	1.054	0.884	6.147
8	547	416.47	3.386	2.053	14.134	0.813	0.493	3.394
8	548	360.35	2.852	2.265	13.897	0.791	0.629	3.857
8	549	395.21	2.883	1.905	11.687	0.729	0.482	2.957
8	550	385.42	2.945	2.076	10.719	0.764	0.539	2.781
8	551	226.17	2.192	2.149	5.412	0.969	0.950	2.393
8	553	343.62	2.725	1.663	9.770	0.793	0.484	2.843
8	554	382.81	2.257	1.612	13.662	0.590	0.421	3.569
8	555	284.21	2.707	2.627	14.620	0.952	0.924	5.144
8	556	236.03	2.989	2.793	7.877	1.266	1.183	3.337
8	557	380.16	3.002	2.175	13.035	0.790	0.572	3.429
8	558	241.35	2.064	1.407	5.566	0.855	0.583	2.306
8	561	389.00	3.056	1.692	12.261	0.786	0.435	3.152
8	562	427.03	2.673	1.631	10.722	0.626	0.382	2.511
8	564	345.47	2.619	1.937	10.474	0.758	0.561	3.032
8	565	381.45	2.786	2.374	13.978	0.730	0.622	3.664
8	566	273.54	2.304	4.216	15.802	0.842	1.541	5.777
8	567	389.35	3.151	1.873	14.649	0.809	0.481	3.762
8	568	329.44	3.065	2.284	16.536	0.930	0.693	5.019
8	570	344.52	2.927	1.867	10.988	0.850	0.542	3.189

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
8	541	366.07	1.748	2.006	1.178	0.478	0.548	0.322
8	542	337.84	1.285	1.837	1.280	0.380	0.544	0.379
8	543	343.00	1.009	1.953	0.586	0.294	0.569	0.171
8	544	414.45	1.306	2.198	2.667	0.315	0.530	0.644
8	545	320.82	1.215	2.090	1.039	0.379	0.651	0.324
8	546	257.09	1.140	1.975	2.683	0.443	0.768	1.044
8	547	416.47	1.196	2.027	1.299	0.287	0.487	0.312
8	548	360.35	1.507	2.116	6.078	0.418	0.587	1.687
8	549	395.21	1.333	2.066	1.498	0.337	0.523	0.379
8	550	385.42	1.263	2.090	1.500	0.328	0.542	0.389
8	551	226.17	0.842	1.794	0.280	0.372	0.793	0.124
8	553	343.62	1.237	1.763	1.333	0.360	0.513	0.388
8	554	382.81	1.029	1.845	1.123	0.269	0.482	0.293
8	555	284.21	1.209	1.741	7.787	0.425	0.613	2.740
8	556	236.03	1.149	1.965	2.931	0.487	0.833	1.242
8	557	380.16	1.184	2.035	1.485	0.311	0.535	0.391
8	558	241.35	0.743	1.692	0.469	0.308	0.701	0.194
8	561	389.00	1.176	1.962	1.206	0.302	0.504	0.310
8	562	427.03	1.123	1.930	1.191	0.263	0.452	0.279
8	564	345.47	1.264	2.101	2.007	0.366	0.608	0.581
8	565	381.45	1.321	1.947	0.568	0.346	0.510	0.149
8	566	273.54	1.108	1.830	12.200	0.405	0.669	4.460
8	567	389.35	1.343	2.036	2.353	0.345	0.523	0.604
8	568	329.44	1.507	2.182	10.437	0.457	0.662	3.168
8	570	344.52	1.328	2.085	1.235	0.385	0.605	0.358

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	TESTES WEIGHT	% ADRENAL	% THYMUS	% TESTES
8	541	366.07	0.093	0.432	4.803	0.025	0.118	1.312
8	542	337.84	0.079	0.142	7.313	0.023	0.042	2.165
8	543	343.00	0.055	0.272	5.565	0.016	0.079	1.622
8	544	414.45	0.106	0.336	4.347	0.026	0.081	1.049
8	545	320.82	0.087	0.170	6.154	0.027	0.053	1.918
8	546	257.09	0.114	0.068	4.065	0.044	0.026	1.581
8	547	416.47	0.084	0.458	7.561	0.020	0.110	1.815
8	548	360.35	0.120	0.227	7.106	0.033	0.063	1.972
8	549	395.21	0.088	0.322	5.679	0.022	0.081	1.437
8	550	385.42	0.082	0.457	7.021	0.021	0.119	1.822
8	551	226.17	0.062	0.051	3.475	0.027	0.023	1.536
8	553	343.62	0.067	0.230	3.141	0.019	0.067	0.914
8	554	382.81	0.075	0.063	2.507	0.020	0.016	0.655
8	555	284.21	0.073	0.459	4.180	0.026	0.162	1.471
8	556	236.03	0.161	0.229	2.035	0.068	0.097	0.862
8	557	380.16	0.083	0.344	9.124	0.022	0.090	2.400
8	558	241.35	0.111	0.174	2.855	0.046	0.072	1.183
8	561	389.00	0.076	0.202	3.999	0.020	0.052	1.028
8	562	427.03	0.052	0.243	7.742	0.012	0.057	1.813
8	564	345.47	0.080	0.487	4.796	0.023	0.141	1.388
8	565	381.45	0.082	0.091	3.703	0.021	0.024	0.971
8	566	273.54	0.049	0.474	2.265	0.018	0.173	0.828
8	567	389.35	0.080	0.133	9.470	0.021	0.034	2.432
8	568	329.44	0.109	0.663	3.619	0.033	0.201	1.099
8	570	344.52	0.072	0.173	6.463	0.021	0.050	1.876

APPENDIX D  
HEMATOLOGY DATA

# Hematology Data/Females

DOSE GROUPS	ANIMALS	MCH	MCHC	PLAT	NEUTRO PHILS	LYMPHO- CYTES	RETIC	HEINZ BODIES
(mg TNB/kg)				thsn/ cu mm	%	%	%	%
300	30	18.6	33.4	698	54.4	38.1	3.7	0.0
	32	18.5	33.4	702	35.1	58.2	3.1	0.0
	34	18.3	32.7	603	40.1	48.9	3.2	0.0
	36	18.4	33.1	709	55.4	35.2	3.8	0.0
	38	19.9	32.4	654	35.0	54.1	5.5	0.0
	39	17.8	32.1	622	32.5	57.7	3.1	0.0
	47	18.1	31.9	768	35.5	59.6	3.7	0.0
	52	18.2	31.9	810	59.2	32.5	4.9	0.0
	64	18.0	31.9	639	45.3	48.3	3.0	0.0
	70	18.2	31.9	657	55.0	38.9	3.6	0.0
60	104	17.9	31.9	681	78.0	19.0	3.2	0.0
	105	18.8	33.8	557	52.6	39.8	2.8	0.0
	125	18.5	33.0	649	58.8	34.7	3.1	0.0
	128	18.9	33.8	570	38.4	54.6	2.5	0.0
	130	18.8	33.4	659	56.5	34.4	2.7	0.0
	134	18.2	32.6	601	52.1	41.8	2.9	0.0
	138	18.2	33.0	579	65.0	31.0	3.4	0.0
	143	18.6	33.4	633	54.0	36.3	2.8	0.0
	146	18.4	32.9	650	38.2	55.9	3.0	0.0
	147	*	*	*	*	*	*	*
5	190	19.7	34.4	538	53.2	39.2	2.8	0.0
	192	18.9	32.8	542	58.0	36.0	3.8	0.0
	196	18.6	33.0	655	40.8	45.8	3.3	0.0
	198	18.8	33.3	603	44.2	49.5	3.0	0.0
	199	19.7	34.3	526	43.0	48.0	2.5	0.0
	201	18.9	33.0	**	52.9	41.1	2.6	0.0
	203	18.9	33.8	626	44.3	48.1	2.6	0.0
	210	19.0	33.8	543	39.3	51.6	2.8	0.0
	212	17.6	31.0	654	59.1	34.9	4.7	0.0
	213	19.1	30.0	563	74.7	18.4	10.2	0.0
0	256	19.7	33.6	529	42.0	51.5	3.1	0.0
	262	22.5	32.5	818	72.0	25.0	9.0	0.0
	264	19.0	33.1	643	54.5	39.4	3.0	0.0
	267	19.2	33.0	613	53.6	39.5	3.5	0.0
	268	19.0	33.4	607	33.0	55.0	3.1	0.0
	269	25.2	34.6	518	30.0	68.0	1.3	0.0
	270	18.8	32.7	588	42.3	49.4	4.0	0.0
	271	19.3	34.5	590	58.7	34.1	2.8	0.0
	273	18.4	33.6	687	63.9	26.9	3.2	0.0
	281	20.2	32.7	623	52.0	43.0	5.0	0.0

\* clotted sample

\*\*clumped

# Hematology Data/Females

DOSE GROUPS	ANIMALS	METHB	WBC COUNT	RBC COUNT	HGB	HCT	MCV
(mg TNB/kg)			thsn/ cu mm	mill/ cu mm	g/dl	%	cu micr
diet	#	%	cu mm	cu mm	g/dl	%	cu micr
300	30	2.7	4.7	7.23	13.4	40.3	55.7
	32	1.7	2.8	7.36	13.7	40.8	55.5
	34	2.7	2.5	7.56	13.9	42.4	56.1
	36	2.4	2.8	7.82	14.4	43.4	55.6
	38	2.8	2.8	6.31	12.5	38.7	61.3
	39	1.7	4.6	7.54	13.4	41.7	55.3
	47	1.9	3.3	7.72	14.0	43.7	56.7
	52	3.6	2.3	6.66	12.1	38.0	57.1
	64	3.3	2.4	7.51	13.5	42.4	56.4
	70	2.1	2.8	6.91	12.5	39.3	56.9
60	104	1.2	2.6	7.81	14.0	43.8	56.1
	105	1.0	2.3	8.09	15.2	45.0	55.6
	125	1.4	2.9	7.73	14.3	43.4	56.1
	128	0.5	2.1	8.01	15.1	44.8	55.9
	130	1.2	1.6	7.93	14.9	44.5	56.1
	134	1.2	2.3	8.13	14.8	45.4	55.8
	138	1.5	2.2	7.76	14.1	42.8	55.2
	143	1.2	1.9	7.97	14.9	44.5	55.8
	146	1.2	2.4	8.15	15.0	45.6	55.9
	147	*	*	*	*	*	*
5	190	0.8	2.7	7.93	15.6	45.4	57.2
	192	0.8	2.2	7.99	15.1	46.0	57.6
	196	1.2	2.0	7.72	14.3	43.4	56.2
	198	1.0	1.9	7.99	15.0	45.1	56.5
	199	0.7	1.7	7.81	15.4	44.9	57.4
	201	0.2	1.8	7.65	14.5	43.8	57.3
	203	1.0	2.5	7.93	15.0	44.4	56.0
	210	0.8	2.2	8.06	15.3	45.4	56.3
	212	1.0	8.7	7.57	13.3	42.9	56.6
	213	1.2	2.1	6.48	12.4	41.3	63.8
0	256	0.0	2.2	7.27	14.4	42.7	58.7
	262	1.2	6.6	4.75	10.7	32.9	69.2
	264	1.0	2.1	7.94	15.0	45.5	57.3
	267	2.2	2.0	7.78	14.9	45.1	58.0
	268	0.8	3.3	7.87	14.9	44.7	56.8
	269	1.2	5.3	1.66	4.2	12.1	72.8
	270	0.6	1.3	7.80	14.6	44.7	57.4
	271	1.2	2.6	8.02	15.5	44.9	56.0
	273	1.5	2.6	7.87	14.4	43.0	54.7
	281	0.5	2.9	6.50	13.1	40.1	61.8

\* clotted sample

# Hematology Data/Males

DOSE GROUPS	ANIMALS	MCH	MCHC	PLAT	NEUTRO PHILS	LYMPHO- CYTES	RETIC	HEINZ BODIES
(mg TNB/kg)				thsn/ cu mm	%	%	%	%
diet	#	picogm	g/dl					
300	318	16.8	31.1	1003	58.7	36.3	7.0	0.0
	328	16.1	31.8	748	61.1	32.3	4.6	0.0
	331	15.7	31.5	780	47.9	45.1	3.5	0.0
	333	16.4	31.5	693	55.4	38.7	4.4	0.0
	335	17.8	32.1	818	56.8	38.4	3.8	0.0
	338	19.0	30.9	833	58.7	36.2	5.7	0.0
	345	17.3	32.1	697	31.2	58.0	3.2	0.0
	352	16.4	31.7	728	46.7	47.3	3.7	0.0
	354	17.1	32.5	790	40.8	53.4	4.4	0.0
	357	15.8	31.6	791	55.3	38.2	3.3	0.0
60	398	17.4	32.3	737	64.6	29.0	4.6	0.0
	400	17.0	31.3	930	57.9	36.1	5.7	0.0
	406	17.9	33.2	799	56.7	37.2	3.0	0.0
	407	17.0	32.2	878	66.6	27.5	5.4	0.0
	413	17.6	32.8	741	37.2	53.4	6.6	0.0
	416	18.0	32.2	697	47.0	44.2	2.6	0.0
	420	18.7	32.1	786	44.0	48.2	4.4	0.0
	428	17.4	32.5	627	43.6	50.3	4.8	0.0
	433	16.7	32.0	478	59.4	34.8	3.4	0.0
	435	18.3	32.1	780	52.8	38.0	4.1	0.0
5	468	18.0	31.3	923	60.6	33.5	9.9	0.0
	469	16.8	32.1	799	64.1	29.7	3.8	0.0
	472	18.1	31.9	860	54.2	39.1	3.9	0.0
	474	18.3	32.3	677	48.4	43.8	5.8	0.0
	475	18.5	31.7	973	58.3	34.8	6.5	0.0
	478	23.3	31.3	520	12.0	70.0	15.5	0.0
	493	18.1	33.2	712	58.8	33.7	3.6	0.0
	496	17.9	33.2	620	54.9	39.0	3.9	0.0
	499	18.3	32.8	857	42.2	49.8	4.5	0.0
	508	18.1	32.8	735	49.7	43.8	3.5	0.0
0	545	18.1	32.4	791	42.9	46.5	4.0	0.0
	546	22.7	32.6	830	74.0	25.0	11.1	0.0
	547	18.4	32.6	717	59.4	33.6	3.8	0.0
	548	22.6	31.2	478	45.8	44.2	22.3	0.0
	549	18.4	32.1	651	66.1	26.0	4.4	0.0
	550	17.5	33.3	692	44.7	45.7	3.2	0.0
	553	17.8	32.3	648	38.8	54.5	3.5	0.0
	562	17.5	32.4	*	52.9	40.7	3.8	0.0
	564	17.7	32.4	585	42.8	50.7	6.8	0.0
	567	18.6	31.7	*	55.3	35.9	6.3	0.0

\*clumped

# Hematology Data/Males

DOSE GROUPS	ANIMALS	METHB	WBC COUNT	RBC COUNT	HGB	HCT	MCV
(mg TNB/kg)			thsn/ cu mm	mill/ cu mm			
diet	#	%	cu mm	cu mm	g/dl	%	cu micr
300	318	1.9	2.8	7.40	12.4	40.0	54.0
	328	1.4	4.4	8.57	13.8	43.5	50.7
	331	1.6	5.4	9.27	14.6	43.3	49.9
	333	1.4	4.3	8.47	13.9	44.0	52.0
	335	3.1	3.1	7.47	13.3	41.3	55.3
	338	2.5	5.6	6.72	12.8	41.3	61.4
	345	2.1	3.7	8.09	14.0	43.6	53.9
	352	1.5	4.7	8.84	14.5	45.6	51.6
	354	2.1	4.5	8.90	15.2	47.0	52.7
	357	1.6	4.5	8.80	13.9	44.0	49.9
60	398	1.7	4.1	7.58	13.2	40.9	53.9
	400	0.4	3.6	8.15	13.9	44.4	54.5
	406	1.6	3.3	7.71	13.8	41.5	53.9
	407	1.0	4.8	7.47	12.7	39.3	52.6
	413	0.5	4.4	7.45	13.1	40.1	53.9
	416	0.9	2.6	8.29	14.9	46.4	56.0
	420	1.2	3.0	7.59	14.2	44.2	58.2
	428	1.4	3.7	8.04	14.0	43.2	53.8
	433	0.9	6.2	10.93	18.3	57.1	52.3
	435	1.4	3.3	7.36	13.5	42.0	57.0
5	468	0.3	2.9	6.87	12.4	39.5	57.5
	469	0.4	5.6	8.73	14.6	45.6	52.3
	472	0.6	2.4	7.16	12.9	40.6	56.7
	474	0.6	3.5	6.79	12.4	38.3	56.5
	475	0.3	3.3	6.95	12.9	40.6	58.4
	478	0.1	67.2	4.57	10.6	33.9	74.2
	493	1.2	2.2	8.62	15.6	46.9	54.5
	496	0.2	2.6	8.59	15.4	46.2	53.8
	499	0.7	3.9	8.28	15.1	46.1	55.8
	508	1.3	2.8	7.93	14.4	43.8	55.2
0	545	0.5	3.3	7.85	14.2	43.9	55.9
	546	0.3	4.4	5.48	12.4	38.2	69.7
	547	1.0	2.9	7.57	13.9	42.7	56.4
	548	0.6	3.5	4.26	9.6	30.7	72.2
	549	1.1	1.7	7.36	13.5	42.1	57.2
	550	0.4	3.1	9.09	15.9	47.6	52.4
	553	1.1	4.3	8.02	14.3	44.3	55.2
	562	0.6	3.8	9.90	17.3	53.3	53.9
	564	0.5	3.0	7.26	12.9	39.7	54.7
	567	0.5	2.9	8.37	15.6	49.1	58.7



APPENDIX E

CLINICAL CHEMISTRY  
DATA

# Clinical Chemistries/Females

DOSE GROUPS	ANIMALS	AST	ALT	PHOS	A P	CA	TOTAL BILIRUBIN	TOTAL PROTEIN	ALB	TRIG
(mg TNB/kg) diet	#	U/L	U/L	mg/dl	U/L	mg/dl	mg/dl	g/dl	g/dl	mg/dl
300	30	99	52	5.6	65	10.5	0.1	7.2	4.8	155
	32	134	52	6.0	56	10.7	0.1	6.8	5.2	256
	34	123	57	7.8	67	11.0	0.1	6.9	4.7	123
	36	109	41	6.6	60	10.7	0.1	7.3	4.7	108
	38	124	71	8.0	88	10.6	0.1	6.2	4.5	71
	39	159	50	6.3	67	10.8	0.1	7.3	4.8	54
	47	106	50	7.1	60	10.5	0.1	7.1	4.8	36
	52	133	38	8.2	31	11.7	0.1	8.4	5.4	219
	64	159	69	6.6	63	10.2	0.2	6.8	4.3	28
	70	97	55	7.7	83	10.9	0.2	7.9	5.5	159
60	104	123	48	5.0	74	10.1	0.1	6.6	3.9	74
	105	103	43	5.7	55	10.4	0.1	6.7	4.5	132
	125	133	61	6.4	64	10.4	0.1	6.7	4.3	60
	128	133	58	5.4	49	10.6	0.2	7.1	5.1	323
	130	99	43	6.2	51	10.9	0.1	7.2	4.9	121
	134	108	53	5.8	47	10.5	0.1	7.1	4.7	55
	138	122	40	5.3	72	10.5	0.1	7.0	4.6	153
	143	92	50	6.2	39	10.9	0.1	7.5	5.3	273
	146	107	51	5.0	66	10.2	0.1	6.7	4.6	76
	147	*	*	*	*	*	*	*	*	*
5	190	118	55	5.0	75	10.5	0.2	7.0	4.9	215
	192	77	41	6.2	49	10.6	0.2	6.9	5.0	75
	196	117	38	6.5	59	10.9	0.2	7.1	4.1	216
	198	77	42	5.9	45	10.5	0.1	7.1	5.0	118
	199	101	43	7.0	63	10.6	0.1	6.7	4.8	205
	201	107	33	6.8	50	10.4	0.4	6.4	4.2	109
	203	114	45	5.1	69	10.4	0.1	7.3	4.8	195
	210	97	44	6.6	54	10.5	0.1	6.8	4.7	104
	212	193	117	7.2	152	10.2	0.2	6.5	4.1	58
	213	119	60	7.1	62	10.8	0.0	6.9	4.3	43
0	256	131	46	4.9	41	10.0	0.1	7.0	4.6	144
	262	**	**	**	**	**	**	**	**	**
	264	103	42	6.1	60	10.3	0.1	6.7	4.3	72
	267	109	58	7.3	89	11.0	0.1	7.6	5.6	176
	268	115	52	6.8	47	10.7	0.1	7.1	4.9	228
	269	241	94	5.6	133	9.7	0.2	6.4	4.0	139
	270	109	32	6.6	47	10.4	0.1	6.6	4.2	98
	271	181	84	6.6	63	10.3	0.1	6.7	4.7	158
	273	243	60	6.1	58	10.3	0.1	7.3	4.5	148
	281	133	74	7.3	87	10.4	0.1	6.6	4.0	92

\*Clotted sample

\*\*Hemolyzed sample

# Clinical Chemistries/Females

DOSE GROUPS (mg TNB/kg)	ANIMALS	GLUCOSE	BUN	CREAT	SODIUM	POTASSIUM	CHOL
diet	#	mg/dl	mg/dl	mg/dl	mmol/l	mmol/l	mg/dl
300	30	119	21	0.6	140	4.0	149
	32	117	21	0.5	143	4.2	171
	34	103	22	0.6	140	4.1	165
	36	105	23	0.6	141	4.0	142
	38	112	26	0.6	143	4.6	179
	39	128	20	0.6	142	3.8	154
	47	123	24	0.7	140	4.8	153
	52	68	18	0.7	138	4.2	285
	64	143	24	0.6	141	4.5	144
	70	93	27	0.7	140	3.9	211
60	104	108	20	0.5	142	4.2	131
	105	113	19	0.5	142	3.4	141
	125	144	22	0.6	141	4.0	135
	128	109	19	0.5	142	3.8	148
	130	117	18	0.5	142	4.3	155
	134	122	20	0.6	141	3.9	146
	138	94	17	0.5	140	4.6	141
	143	86	17	0.5	140	4.5	181
	146	116	18	0.5	140	4.1	139
	147	*	*	*	*	*	*
5	190	100	18	0.5	142	4.0	133
	192	114	19	0.5	141	3.9	142
	196	98	24	0.6	141	3.6	273
	198	124	16	0.5	141	3.9	141
	199	108	16	0.5	140	4.3	152
	201	125	16	0.5	141	3.8	137
	203	111	18	0.5	139	4.1	156
	210	120	15	0.5	140	4.3	130
	212	105	23	0.6	141	4.1	104
	213	72	14	0.5	140	3.7	123
0	256	129	14	0.6	139	4.2	153
	262	**	**	**	**	**	**
	264	125	17	0.6	141	4.0	130
	267	79	19	0.6	139	4.5	160
	268	97	17	0.6	141	4.1	156
	269	127	20	0.5	141	4.6	128
	270	114	15	0.5	141	3.9	158
	271	89	16	0.5	141	3.7	137
	273	84	18	0.5	139	4.3	192
	281	84	17	0.5	139	4.9	124

\*Clotted sample

\*\*Hemolyzed sample

# Clinical Chemistries/Males

DOSE GROUPS	ANIMALS	AST	ALT	PHOS	A P	CA	TOTAL BILIRUBIN	TOTAL PROTEIN	ALB	TRIG
(mg TNB/kg)										
diet	#	U/L	U/L	mg/dl	U/L	mg/dl	mg/dl	g/dl	g/dl	mg/dl
300	318	153	49	6.0	88	10.5	0.1	7.4	3.8	58
	328	107	39	6.0	77	10.2	0.2	6.3	3.7	123
	331	144	42	5.4	71	9.9	0.1	6.7	3.8	170
	333	137	39	5.2	92	10.0	0.1	6.6	3.9	82
	335	126	33	7.0	53	10.6	0.2	7.3	4.5	58
	338	142	59	7.3	74	10.6	0.2	8.2	4.2	38
	345	139	55	6.7	112	10.5	0.1	7.5	3.8	36
	352	150	52	6.7	74	10.0	0.1	6.3	3.5	136
	354	156	50	6.5	55	10.0	0.3	6.5	4.0	151
	357	182	40	6.5	92	10.2	0.2	6.4	3.5	59
60	398	100	31	6.4	59	10.7	0.2	6.4	3.5	280
	400	160	54	5.9	51	10.3	0.3	6.1	3.6	153
	406	96	36	5.4	56	10.5	0.2	6.5	3.5	119
	407	99	38	6.0	77	10.5	0.2	6.5	3.5	140
	413	109	47	6.1	84	10.9	0.3	6.6	3.7	294
	416	133	51	8.5	60	10.8	0.3	6.9	3.5	124
	420	120	35	7.3	80	10.6	0.3	6.7	3.6	106
	428	125	50	6.0	71	10.2	0.3	6.3	3.7	117
	433	210	52	7.9	81	10.3	0.3	6.2	3.4	74
	435	113	31	6.5	45	10.5	0.2	6.7	3.7	237
5	468	112	34	7.4	66	10.5	0.3	6.7	3.8	131
	469	159	46	5.8	86	10.5	0.2	5.9	3.6	168
	472	130	41	7.5	62	10.9	0.3	6.5	3.5	299
	474	148	64	6.9	98	11.0	0.3	6.5	3.4	309
	475	143	42	6.5	59	9.9	0.3	6.2	3.9	50
	478	628	180	7.1	421	10.6	0.5	6.0	2.8	132
	493	137	55	7.1	63	10.8	0.5	6.5	3.7	348
	496	99	50	7.3	56	10.6	0.2	6.3	3.3	454
	499	97	30	7.2	34	10.7	0.4	6.6	3.7	168
	508	152	53	6.3	74	10.7	0.3	7.2	3.7	220
0	545	107	45	6.7	107	11.0	0.2	6.5	3.4	193
	546	189	95	11.4	92	11.3	0.3	6.2	3.1	42
	547	172	56	7.1	49	11.3	0.4	7.0	3.9	421
	548	129	52	6.5	141	10.1	0.3	5.9	3.4	173
	549	161	59	7.3	73	10.4	0.1	6.5	3.5	161
	550	116	31	4.7	64	10.1	0.3	6.5	3.8	140
	553	142	68	8.1	104	10.2	0.3	6.8	3.5	58
	562	189	50	5.1	73	10.0	0.4	6.5	3.9	66
	564	149	71	5.2	105	10.0	0.3	6.4	3.7	68
	567	178	56	7.4	74	10.4	0.5	6.5	3.8	207

# Clinical Chemistries/Males

DOSE GROUPS (mg TNB/kg)	ANIMALS #	GLUCOSE mg/dl	BUN mg/dl	CREAT mg/dl	SODIUM mmol/l	POTASSIUM mmol/l	CHOL mg/dl
300	318	76	22	0.6	142	4.2	125
	328	118	24	0.6	142	4.4	107
	331	110	23	0.5	142	4.4	120
	333	105	23	0.5	143	4.2	117
	335	122	21	0.7	142	4.6	132
	338	47	26	0.7	143	4.6	180
	345	117	25	0.5	144	4.6	101
	352	109	26	0.6	143	4.6	107
	354	136	28	0.6	143	4.2	123
	357	96	25	0.5	143	4.7	81
60	398	102	26	0.6	141	4.2	194
	400	116	25	0.6	143	5.0	189
	406	139	23	0.6	142	4.0	224
	407	116	21	0.6	140	4.6	146
	413	121	33	0.6	141	4.7	188
	416	101	23	0.7	143	4.4	279
	420	123	22	0.6	143	5.2	187
	428	116	22	0.5	143	4.0	147
	433	102	29	0.8	142	5.2	69
	435	112	20	0.6	142	3.7	287
5	468	113	26	0.6	143	5.0	128
	469	120	27	0.6	142	4.2	133
	472	84	29	0.8	143	4.4	205
	474	81	33	0.7	141	4.1	273
	475	128	19	0.5	143	4.1	123
	478	55	32	0.6	145	4.8	83
	493	103	27	0.7	141	3.9	205
	496	95	32	0.8	145	3.8	282
	499	106	29	0.7	142	4.6	248
	508	82	22	0.6	141	3.9	222
0	545	122	25	0.6	142	4.5	222
	546	95	71	0.6	146	4.1	282
	547	121	23	0.7	141	4.4	285
	548	101	22	0.6	142	3.5	105
	549	120	18	0.6	141	3.7	178
	550	99	19	0.7	142	4.1	135
	553	116	16	0.5	142	4.2	155
	562	72	17	0.6	144	4.1	105
	564	118	18	0.4	142	4.0	104
	567	151	30	0.8	142	4.3	191

APPENDIX F

CLINICAL OBSERVATIONS

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
1- 1	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 2	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 3	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 4	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 5	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 6	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 7	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 8	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 9	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 10	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
1- 11	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 12	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 13	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 14	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 15	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 16	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 17	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 18	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 19	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 20	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
1- 21	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
1- 22	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
1- 23	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
1- 24	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
1- 25	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
1- 26	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
1- 27	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 28	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
1- 29	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
1- 30	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 31	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 32	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94		
	CUT - RIGHT FRONT FOOT	3/2/94 - 3/3/94		
	NO REMARKABLE OBSERVATIONS	3/4/94 - 1/29/95		
	EYE CATARACT - LEFT	1/30/95 - 2/21/95		
	EYE CATARACTS - BOTH	2/27/95 - 8/24/95		
	MASS - SUB-Q - UNDER LEFT FRONT LEG	8/21/95 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 33	NO REMARKABLE OBSERVATIONS	8/30/93 - 2/4/94		

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
	EYE - LEFT - IRRITATION	2/4/94 - 2/11/94		
	NO REMARKABLE OBSERVATIONS	2/12/94 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 34	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 35	NO REMARKABLE OBSERVATIONS	8/30/93 - 6/18/95		
	EYE CATARACT - LEFT	6/19/95 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 36	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 37	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 38	NO REMARKABLE OBSERVATIONS	8/30/93 - 6/25/95		
	EYE CATARACT - LEFT	6/26/95 - 8/24/95		
	MASS - UPPER RIGHT FOREARM	7/17/95 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 39	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 40	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/5/95		
	EYE CATARACT - RIGHT	3/6/95 - 8/24/95		
	EYE - RIGHT - BLOOD FILLED	8/7/95 - 8/24/95	8/25/95	FINAL SACRIFICE
1- 41	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	EYE CATARACT - LEFT	8/7/95 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 42	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/29/95		
	EYE CATARACT - LEFT	5/30/95 - 8/24/95		
	MASS - SKIN-LOWER LIP	6/2/95 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 43	NO REMARKABLE OBSERVATIONS	8/30/93 - 9/6/94		
	ABRASION ON BACK	9/6/94 - 11/21/94		
	HAIR LOSS - BEHIND RIGHT SHOULDER	10/11/94 - 12/22/94		
	OPEN SORE - ON BACK	11/21/94 - 12/22/94		
	EXCESSIVE DRINKING	11/28/94 - 12/22/94	12/22/94	MORIBUND SACRIFICE
1- 44	NO REMARKABLE OBSERVATIONS	8/30/93 - 10/3/94		
	MASS - LEFT REAR LEG	10/4/94 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 45	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 46	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 47	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	EYE CATARACT - RIGHT	8/7/95 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 48	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/31/95	FINAL SACRIFICE
1- 49	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
1- 50	NO REMARKABLE OBSERVATIONS	8/30/93 - 12/12/93		
	WEIGHT LOSS	12/13/93 - 12/20/93		
	LETHARGIC (WEAK)	12/13/93 - 12/20/93		
	NO REMARKABLE OBSERVATIONS	12/21/93 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 51	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/31/95	FINAL SACRIFICE
1- 52	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE



CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
1- 53	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/13/95		
	CLITORAL GLAND MASS	3/14/95 - 5/22/95	5/22/95	MORIBUND SACRIFICE
1- 54	NO REMARKABLE OBSERVATIONS	8/30/93 - 6/25/95		
	WEIGHT LOSS	6/26/95 - 6/29/95		
	LETHARGIC (WEAK)	6/26/95 - 6/29/95	6/30/95	MORIBUND SACRIFICE
1- 55	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
1- 56	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/20/95		
	MASS - RIGHT REAR LEG	8/21/95 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 57	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 58	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	EYE CATARACTS - BOTH	8/7/95 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 59	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/10/95		
	NO ABNORMAL CLINICAL SIGNS OBSERVED		4/10/95	FOUND DEAD *
1- 60	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
1- 61	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/3/95		
	LETHARGIC (WEAK)	7/4/95 - 8/6/95		
	NO REMARKABLE OBSERVATIONS	8/7/95 - 8/24/95	8/25/95	FINAL SACRIFICE
1- 62	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/16/95		
	EYE CATARACT - LEFT	7/17/95 - 8/20/95		
	EYE CATARACTS - BOTH	8/21/95 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 63	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 64	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/3/95		
	EYE CATARACT - RIGHT	7/4/95 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 65	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/16/95		
	EYE CATARACT - LEFT	4/17/95 - 7/9/95		
	EYE CATARACTS - BOTH	7/10/95 - 8/24/95	8/25/95	FINAL SACRIFICE
1- 66	NO REMARKABLE OBSERVATIONS	8/30/93 - 12/11/94		
	WEIGHT LOSS	12/12/94 - 12/19/94		
	NO REMARKABLE OBSERVATIONS	12/20/94 - 3/5/95		
	EYE CATARACT - RIGHT	3/6/95 - 3/26/95		
	EYE CATARACTS - BOTH	3/27/95 - 7/24/95		
	WEIGHT LOSS	4/17/95 - 4/24/95		
	LETHARGIC (WEAK)	4/17/95 - 4/24/95		
	WEIGHT LOSS	7/4/95 - 7/24/95		
	LETHARGIC (WEAK)	7/4/95 - 7/24/95	7/24/95	MORIBUND SACRIFICE
1- 67	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
1- 68	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
1- 69	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
1- 70	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
1- 71	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 72	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
1- 73	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
1- 74	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	WEIGHT LOSS	8/7/95 - 8/24/95		
	EXCESSIVE DRINKING	8/7/95 - 8/24/95		
	LETHARGIC (WEAK)	8/21/95 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 75	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 76	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 77	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 78	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 79	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 80	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 81	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 82	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 83	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 84	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 85	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
2- 86	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 87	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 88	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 89	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 90	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 91	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 92	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 93	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 94	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 95	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
2- 96	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
2- 97	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
2- 98	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
2- 99	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
2- 100	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
2- 101	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
2- 102	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
2- 103	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
2- 104	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 105	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 106	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/14/95		
	CLITORAL GLAND MASS	5/15/95 - 7/23/95		
	EYE CATARACTS - BOTH	6/19/95 - 7/23/95		
	LETHARGIC (WEAK)	7/17/95 - 7/23/95	7/24/95	FOUND DEAD *
2- 107	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/20/95		
	MASS - ANTERIOR TO LEFT LEG	8/21/95 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 108	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/14/95		
	WEIGHT LOSS	5/15/95 - 8/24/95		
	MASS - LEFT REAR LEG	8/7/95 - 8/24/95		
	LETHARGIC (WEAK)	8/21/95 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 109	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/29/95		
	EYE CATARACTS - BOTH	5/30/95 - 8/24/95		
	MASS - ABDOMINAL	8/21/95 - 8/24/95	8/31/95	FINAL SACRIFICE
2- 110	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
2- 111	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/14/95		
	MASS - ABDOMINAL	5/15/95 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 112	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/20/94		
	EYE CATARACT - RIGHT	11/21/94 - 5/12/95		
	CLITORAL GLAND MASS	2/6/95 - 5/12/95	5/12/95	MORIBUND SACRIFICE
2- 113	NO REMARKABLE OBSERVATIONS	8/30/93 - 10/18/94	10/19/94	FOUND DEAD *
2- 114	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/1/95	8/2/95	FOUND DEAD
2- 115	NO REMARKABLE OBSERVATIONS	8/30/93 - 6/18/95		
	EYE CATARACT - LEFT	6/19/95 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 116	NO REMARKABLE OBSERVATIONS	8/30/93 - 9/5/94		
	LETHARGIC (WEAK)	9/6/94 - 9/7/94		
	WEIGHT LOSS	9/6/94 - 9/7/94	9/7/94	MORIBUND SACRIFICE
2- 117	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/26/95		
	EYE CATARACTS - BOTH	3/27/95 - 8/24/95		
	MASS - UNDER LEFT FRONT LEG	8/7/95 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 118	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/26/95		
	EYE CATARACT - LEFT	3/27/95 - 4/2/95		
	EYE CATARACTS - BOTH	4/3/95 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 119	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/23/95		
	EYE CATARACTS - BOTH	4/24/95 - 6/7/95	6/7/95	FOUND DEAD *
2- 120	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/31/95	FINAL SACRIFICE

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
2- 121	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 122	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 123	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/14/95		
	JAUNDICE	5/15/95 - 5/22/95		
	LETHARGIC (WEAK)	5/15/95 - 5/22/95	5/22/95	MORIBUND SACRIFICE
2- 124	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 125	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 126	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 127	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/16/95		
	NOT EATING OR DRINKING	4/17/95 - 4/19/95	4/19/95	FOUND DEAD *
2- 128	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/16/95		
	EYE CATARACT - RIGHT	7/17/95 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 129	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/29/95		
	EYE CATARACT - LEFT	5/30/95 - 8/13/95		
	EYE CATARACTS - BOTH	8/14/95 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 130	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 131	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/3/95		
	MASS - ON BACK	7/4/95 - 8/24/95		
	WEIGHT LOSS	8/21/95 - 8/24/95		
	LETHARGIC (WEAK)	8/21/95 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 132	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/31/95	FINAL SACRIFICE
2- 133	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/13/95		
	LETHARGIC (WEAK)	3/14/95 - 3/21/95		
	NOT EATING OR DRINKING	3/14/95 - 3/21/95		
	TEETH VERY LONG	3/21/95	3/21/95	MORIBUND SACRIFICE
2- 134	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 135	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 136	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/25/94		
	EYE CATARACT - LEFT	5/26/94 - 8/24/95	8/31/94	12 MONTH SACRIFICE
2- 137	NO REMARKABLE OBSERVATIONS	8/30/93 - 6/18/95		
	EYE CATARACT - LEFT	6/19/95 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 138	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/14/95		
	EYE CATARACTS - BOTH	5/15/95 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 139	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/14/95		
	MASS - RIGHT FRONT LEG	5/15/95 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 140	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 141	NO REMARKABLE OBSERVATIONS	8/30/93 - 2/20/95	2/21/95	FOUND DEAD *

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
2- 142	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/26/95		
	MASS - ABDOMINAL	3/27/95 - 4/3/95		
	LETHARGIC (WEAK)	3/27/95 - 4/3/95	4/3/95	MORIBUND SACRIFICE
2- 143	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 144	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/9/95		
	CLITORAL GLAND MASS	4/10/95 - 4/14/95		
	NO REMARKABLE OBSERVATIONS	4/15/95 - 8/6/95		
	CLITORAL GLAND MASS	8/7/95 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 145	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	EYE CATARACTS - BOTH	8/7/95 - 8/24/95	8/25/95	FINAL SACRIFICE
2- 146	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/26/95		
	EYE CATARACTS - BOTH	3/27/95 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 147	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/26/95		
	EYE CATARACT - LEFT	3/27/95 - 4/28/95		
	EYE CATARACTS - BOTH	4/29/95 - 8/24/95	8/29/95	FINAL SACRIFICE
2- 148	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/2/95		
	EYE CATARACTS - BOTH	4/3/95 - 8/24/95	8/30/95	FINAL SACRIFICE
2- 149	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/26/95		
	CLITORAL GLAND MASS	3/27/95 - 4/16/95		
	MASS - ABDOMINAL	4/17/95 - 8/24/95	8/31/95	FINAL SACRIFICE
2- 150	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 151	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 152	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 153	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 154	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 155	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 156	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 157	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 158	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 159	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 160	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
3- 161	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
3- 162	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
3- 163	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
3- 164	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
3- 165	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
3- 166	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
3- 167	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
3- 168	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
3- 169	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
3- 170	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
3- 171	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 172	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 173	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 174	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 175	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 176	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 177	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 178	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 179	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 180	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 181	NO REMARKABLE OBSERVATIONS	8/30/93 - 6/1/95		
	MASS - LOWER LIP	6/2/95 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 182	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 183	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/21/95		
	SWOLLEN JAW	5/22/95 - 6/2/95	6/2/95	MORIBUND SACRIFICE
3- 184	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 185	NO REMARKABLE OBSERVATIONS	8/30/93 - 1/2/95		
	MASS - MANDIBULAR LYMPH NODE	1/3/95 - 2/9/95		
	LETHARGIC (WEAK)	2/6/95 - 2/9/95	2/9/95	MORIBUND SACRIFICE
3- 186	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/20/95		
	MASS - UNDER LEFT REAR LEG	8/21/95 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 187	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/3/95		
	MASS - UNDER LEFT FRONT LEG	7/4/95 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 188	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/20/94		
	LETHARGIC (WEAK)	11/21/94 - 11/23/94		
	WEIGHT LOSS	11/21/94 - 11/23/94		
	GASPING FOR AIR	11/21/94 - 11/23/94		
	TEETH VERY LONG	11/23/94	11/23/94	MORIBUND SACRIFICE
3- 189	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
3- 190	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 191	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/2/95		
	MASS - ABDOMINAL	4/3/95 - 5/31/95		
	LETHARGIC (WEAK)	5/30/95 - 5/31/95		
	JAUNDICE	5/30/95 - 5/31/95		
	NOT DRINKING	5/30/95 - 5/31/95	5/31/95	MORIBUND SACRIFICE

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
3- 192	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 193	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
3- 194	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 195	NO REMARKABLE OBSERVATIONS	8/30/93 - 2/5/95		
	EYES - PALE	2/6/95 - 2/16/95		
	LETHARGIC (WEAK)	2/6/95 - 2/16/95	2/16/95	MORIBUND SACRIFICE
3- 196	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 197	NO REMARKABLE OBSERVATIONS	8/30/93 - 1/9/95		
	ABSCCESS - ABDOMEN	1/10/95 - 1/29/95		
	CLITORAL GLAND MASS	1/30/95 - 4/21/95	4/21/95	MORIBUND SACRIFICE
3- 198	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 199	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 200	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/20/94		
	MASS - UNDER RIGHT FRONT LEG	11/21/94 - 2/9/95	2/9/95	MORIBUND SACRIFICE
3- 201	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 202	NO REMARKABLE OBSERVATIONS	8/30/93 - 1/9/95		
	JAUNDICE - SEVERE	1/10/95 - 1/11/95		
	LETHARGIC (WEAK)	1/10/95 - 1/11/95		
	WEIGHT LOSS	1/10/95 - 1/11/95	1/11/95	MORIBUND SACRIFICE
3- 203	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 204	NO REMARKABLE OBSERVATIONS	8/30/95 - 6/1/95		
	MASS - ABDOMINAL	6/2/95 - 8/18/95		
	LETHARGIC (WEAK)	8/7/95 - 8/18/95	8/18/95	MORIBUND SACRIFICE
3- 205	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/13/95		
	CLITORAL GLAND MASS	3/14/95 - 8/4/95	8/4/95	MORIBUND SACRIFICE
3- 206	NO REMARKABLE OBSERVATIONS	8/30/93 - 6/18/95		
	EYE CATARACTS - BOTH	6/19/95 - 7/12/95		
	WEIGHT LOSS	7/10/95 - 7/12/95		
	LETHARGIC (WEAK)	7/10/95 - 7/12/95	7/12/95	MORIBUND SACRIFICE
3- 207	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/9/95		
	EYE CATARACT - RIGHT	4/10/95 - 7/16/95		
	EYE CATARACTS - BOTH	7/17/95 - 8/24/95		
	MASS - ABDOMINAL	8/21/95 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 208	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/9/95		
	EYE CATARACTS - BOTH	4/10/95 - 8/24/95	8/31/95	FINAL SACRIFICE
3- 209	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/2/95		
	EYE CATARACTS - BOTH	4/3/95 - 8/24/95		
	MASS - ABDOMINAL	4/24/95 - 8/24/95	8/31/95	FINAL SACRIFICE

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
3- 210	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 211	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	EYE CATARACTS - BOTH	8/7/95 - 8/24/95		
	LETHARGIC (WEAK)	8/7/95 - 8/24/95		
	NOT DRINKING	8/7/95 - 8/11/95	8/25/95	FINAL SACRIFICE
3- 212	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/7/93		
	EYE - LEFT - IRRITATION	11/8/93 - 11/9/93		
	NO REMARKABLE OBSERVATIONS	11/10/93 - 2/5/95		
	MASS - ABDOMINAL	2/6/95 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 213	NO REMARKABLE OBSERVATIONS	8/30/93 - 2/5/95		
	CLITORAL GLAND MASS	2/6/95 - 8/24/95		
	EYE CATARACT - RIGHT	6/12/95 - 8/24/95	8/29/95	FINAL SACRIFICE
3- 214	NO REMARKABLE OBSERVATIONS	8/30/93 - 2/20/95		
	EYE CATARACTS - BOTH	2/21/95 - 8/24/95		
	MASS - LOWER LIP	6/5/95 - 8/24/95		
	EYE - RIGHT - BLOOD FILLED	8/7/95 - 8/24/95	8/31/95	FINAL SACRIFICE
3- 215	NO REMARKABLE OBSERVATIONS	8/30/93 - 10/23/94	10/24/94	FOUND DEAD
3- 216	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/3/95		
	MASS - UNDER RIGHT FRONT LEG	7/4/95 - 8/24/95	8/31/95	FINAL SACRIFICE
3- 217	NO REMARKABLE OBSERVATIONS	8/30/93 - 2/18/95	2/19/95	FOUND DEAD *
3- 218	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/16/95		
	LETHARGIC (WEAK)	4/18/95 - 4/21/95		
	NOT EATING	4/17/95	4/21/95	MORIBUND SACRIFICE
3- 219	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 220	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/3/95		
	BLOATED ABDOMEN	7/4/95 - 8/24/95		
	MASS - UNDER RIGHT FRONT LEG	8/21/95 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 221	NO REMARKABLE OBSERVATIONS	8/30/93 - 1/29/95		
	CLITORAL GLAND - ENLARGED	1/30/95 - 2/5/95		
	VAGINAL MASS	2/6/95 - 6/2/95		
	LETHARGIC (WEAK)	5/31/95 - 6/2/95	6/2/95	MORIBUND SACRIFICE
3- 222	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 223	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 224	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
3- 225	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
4- 226	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
4- 227	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED



CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
4- 228	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
4- 229	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
4- 230	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
4- 231	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
4- 232	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
4- 233	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
4- 234	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
4- 235	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/30/93	11/30/93	3 MONTH SACRIFICE
4- 236	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 237	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 238	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 239	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 240	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 241	NO REMARKABLE OBSERVATIONS	8/30/93 - 9/9/93		
	SORE - AT IMPLANT SITE	9/10/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 242	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 243	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 244	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 245	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/1/94	3/1/94	6 MONTH SACRIFICE
4- 246	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 247	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 248	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 249	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 250	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 251	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 252	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 253	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 254	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 255	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 256	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 257	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
4- 258	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
4- 259	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/24/95		
	LETHARGIC (WEAK)	4/25/95 - 4/27/95	4/27/95	MORIBUND SACRIFICE
4- 260	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/29/95		
	EYE CATARACT - RIGHT	5/30/95 - 8/4/95		
	MASS - LEFT FRONT LEG	6/12/95 - 8/4/95		

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
	WEIGHT LOSS	7/31/95 - 8/4/95		
	LETHARGIC (WEAK)	7/31/95 - 8/4/95	8/4/95	MORIBUND SACRIFICE
4- 261	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/16/95	5/17/95	FOUND DEAD
4- 262	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 263	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	MASS - ABDOMINAL	8/7/95 - 8/24/95	8/30/95	FINAL SACRIFICE
4- 264	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 265	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	EYE CATARACTS - BOTH	8/7/95 - 8/24/95	8/25/95	FINAL SACRIFICE
4- 266	NO REMARKABLE OBSERVATIONS	8/30/93 - 9/11/94		
	WEIGHT LOSS	9/12/94 - 9/14/94	9/14/94	MORIBUND SACRIFICE
4- 267	NO REMARKABLE OBSERVATIONS	8/30/93 - 10/23/94		
	CUT - ON FOOT	10/24/94 - 10/25/94		
	NO REMARKABLE OBSERVATIONS	10/26/94 - 3/5/95		
	EYE CATARACTS - BOTH	3/6/95 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 268	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/26/95		
	EYE CATARACT - LEFT	3/27/95 - 4/16/95		
	EYE CATARACTS - BOTH	4/17/95 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 269	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/14/95		
	EYE CATARACT - LEFT	5/15/95 - 6/2/95		
	EYE CATARACTS - BOTH	6/5/95 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 270	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/16/95		
	EYE CATARACTS - BOTH	7/17/95 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 271	NO REMARKABLE OBSERVATIONS	8/30/93 - 2/12/95		
	EYE CATARACTS - BOTH	2/13/95 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 272	NO REMARKABLE OBSERVATIONS	8/30/93 - 11/20/94		
	EXCESSIVE DRINKING	11/21/94 - 2/9/95		
	WEIGHT LOSS	2/6/95 - 2/9/95		
	LETHARGIC (WEAK)	2/6/95 - 2/9/95	2/9/95	MORIBUND SACRIFICE
4- 273	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 274	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
4- 275	NO REMARKABLE OBSERVATIONS	8/30/93 - 2/5/95		
	MASS - ABDOMINAL	2/6/95 - 6/30/95	6/30/95	MORIBUND SACRIFICE
4- 276	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/31/94	8/31/94	12 MONTH SACRIFICE
4- 277	NO REMARKABLE OBSERVATIONS	8/30/93 - 3/26/95		
	LETHARGIC (WEAK)	3/27/95 - 4/3/95	4/3/95	MORIBUND SACRIFICE
4- 278	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	WEIGHT LOSS	8/7/95 - 8/8/95		

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
	LETHARGIC (WEAK)	8/7/95 - 8/8/95	8/9/95	FOUND DEAD
4- 279	NO REMARKABLE OBSERVATIONS	8/30/93 - 2/5/95		
	MASS - UNDER LEFT FRONT LEG	2/6/95 - 4/21/95	4/21/95	MORIBUND SACRIFICE
4- 280	NO REMARKABLE OBSERVATIONS	8/30/93 - 7/23/95	7/24/95	FOUND DEAD *
4- 281	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/29/95	FINAL SACRIFICE
4- 282	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	CLITORAL GLAND MASS	8/7/95 - 8/24/95	8/25/95	FINAL SACRIFICE
4- 283	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/25/95	FINAL SACRIFICE
4- 284	NO REMARKABLE OBSERVATIONS	8/30/93 - 4/16/95		
	LETHARGIC (WEAK)	4/17/95 - 4/19/95	4/19/95	FOUND DEAD *
4- 285	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/24/95	8/30/95	FINAL SACRIFICE
5- 286	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 287	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 288	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 289	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 290	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 291	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 292	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 293	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 294	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 295	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
5- 296	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 297	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 298	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 299	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 300	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 301	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 302	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 303	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 304	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 305	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
5- 306	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
5- 307	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
5- 308	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
5- 309	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
5- 310	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
5- 311	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
5- 312	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
5- 313	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
5- 314	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
5- 315	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
5- 316	NO REMARKABLE OBSERVATIONS	8/31/93 - 10/31/94		
	LETHARGIC (WEAK)	11/1/94	11/1/94	MORIBUND SACRIFICE
5- 317	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 318	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 319	NO REMARKABLE OBSERVATIONS	8/30/93 - 5/29/95		
	LETHARGIC (WEAK)	5/30/95 - 6/8/95	6/8/95	MORIBUND SACRIFICE
5- 320	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 321	NO REMARKABLE OBSERVATIONS	8/30/93 - 8/6/95		
	WEIGHT LOSS	8/7/95 - 8/24/95		
	ROUGH HAIR COAT	8/7/95 - 8/24/95		
	MASS - RIGHT JAW	8/21/95 - 8/24/95	8/25/95	FINAL SACRIFICE
5- 322	NO REMARKABLE OBSERVATIONS	8/31/93 - 4/3/95		
	WEIGHT LOSS	4/4/95 - 4/10/95	4/10/95	FOUND DEAD *
5- 323	NO REMARKABLE OBSERVATIONS	8/31/93 - 4/9/95		
	WEIGHT LOSS	4/10/95 - 4/24/95		
	LETHARGIC (WEAK)	4/13/95 - 4/24/95	4/24/95	FOUND DEAD *
5- 324	NO REMARKABLE OBSERVATIONS	8/31/93 - 5/23/94		
	TAIL - WART-LIKE GROWTHS	5/24/94 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 325	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 326	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
5- 327	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 328	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 329	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/27/95		
	EYE CATARACT - RIGHT	3/28/95 - 8/24/95		
	BLOATED ABDOMEN	7/4/95 - 8/24/95	8/25/95	FINAL SACRIFICE
5- 330	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/17/95		
	MASS - LOWER RIGHT FLANK	7/18/95 - 8/24/95	8/25/95	FINAL SACRIFICE
5- 331	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 332	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 8/24/95	8/31/95	FINAL SACRIFICE

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
5- 333	NO REMARKABLE OBSERVATIONS	8/31/93 - 5/15/95		
	MASS - ON BACK	5/16/95 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 334	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
5- 335	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 336	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/6/95		
	WEIGHT LOSS	8/7/95 - 8/8/95		
	LETHARGIC (WEAK)	8/7/95 - 8/8/95		
	NOT EATING OR DRINKING	8/7/95 - 8/8/95	8/9/95	FOUND DEAD
5- 337	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 8/24/95	8/25/95	FINAL SACRIFICE
5- 338	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 339	NO REMARKABLE OBSERVATIONS	8/31/93 - 1/9/95		
	SORES - REAR PAWS	1/10/95 - 1/17/95		
	WEIGHT LOSS	1/10/95 - 2/5/95		
	NOT EATING	1/19/95 - 2/5/95	2/5/95	FOUND DEAD *
5- 340	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/18/95		
	DRAGGING REAR LEGS	8/18/95	8/18/95	MORIBUND SACRIFICE
5- 341	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/6/95		
	MASS - RIGHT EAR	8/7/95 - 8/24/95	8/25/95	FINAL SACRIFICE
5- 342	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 343	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/17/95		
	MASS - LEFT HIND LEG	7/18/95 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 344	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 345	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 346	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 347	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 348	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 349	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 350	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/17/95		
	EYE CATARACT - LEFT	7/18/95 - 8/24/95	8/31/95	FINAL SACRIFICE
5- 351	NO REMARKABLE OBSERVATIONS	8/31/93 - 2/20/95		
	WEIGHT LOSS	2/21/95 - 3/21/95	3/21/95	FOUND DEAD *
5- 352	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 353	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
5- 354	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 355	NO REMARKABLE OBSERVATIONS	8/31/93 - 2/22/94	2/23/94	FOUND DEAD *
5- 356	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
5- 357	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
5- 358	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/1/94	3/1/94	REMOVED FROM STUDY
5- 359	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/1/94	3/1/94	REMOVED FROM STUDY
5- 360	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/1/94	3/1/94	REMOVED FROM STUDY
6- 361	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 362	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 363	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 364	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 365	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 366	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 367	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 368	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 369	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 370	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
6- 371	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 372	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 373	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 374	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 375	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 376	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 377	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 378	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 379	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 380	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
6- 381	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
6- 382	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
6- 383	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
6- 384	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
6- 385	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
6- 386	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
6- 387	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
6- 388	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
6- 389	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
6- 390	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
6- 391	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
6- 392	NO REMARKABLE OBSERVATIONS	8/31/93 - 1/18/95		
	LETHARGIC (WEAK)	1/19/95 - 1/20/95		
	LAYING ON SIDE	1/20/95		
	SHALLOW BREATHING	1/20/95	1/20/95	MORIBUND SACRIFICE
6- 393	NO REMARKABLE OBSERVATIONS	8/31/93 - 5/29/95		
	LETHARGIC (WEAK)	5/30/95 - 6/2/95		
	WEIGHT LOSS	5/30/95 - 6/2/95	6/2/95	MORIBUND SACRIFICE
6- 394	NO REMARKABLE OBSERVATIONS	8/31/93 - 11/20/94	11/21/94	FOUND DEAD *
6- 395	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 8/24/95	8/25/95	FINAL SACRIFICE
6- 396	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/30/95	7/31/95	FOUND DEAD *
6- 397	NO REMARKABLE OBSERVATIONS	8/31/93 - 6/4/95		
	WEIGHT LOSS	6/5/95 - 6/16/95	6/19/95	FOUND DEAD *
6- 398	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 399	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
6- 400	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 401	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/17/95		
	LETHARGIC (WEAK)	7/18/95 - 7/31/95	7/31/95	FOUND DEAD *
6- 402	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
6- 403	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
6- 404	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
6- 405	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/9/95		
	WEIGHT LOSS	7/10/95 - 7/12/95		
	LETHARGIC (WEAK)	7/10/95 - 7/12/95	7/12/95	MORIBUND SACRIFICE
6- 406	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 407	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 408	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
6- 409	NO REMARKABLE OBSERVATIONS	8/31/93 - 2/20/95		
	WEIGHT LOSS	2/21/95 - 3/20/95		
	LABORED BREATHING	2/21/95 - 3/20/95	3/20/95	FOUND DEAD *
6- 410	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 411	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
6- 412	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/17/95		

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
	EYE CATARACT - RIGHT	7/18/95 - 7/23/95	7/24/95	FOUND DEAD *
6- 413	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 414	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/17/95		
	EYE CATARACT - RIGHT	7/18/95 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 415	NO REMARKABLE OBSERVATIONS	8/31/93 - 4/30/95	5/1/95	FOUND DEAD *
6- 416	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/3/95		
	MASS - TIP OF NOSE	7/4/95 - 8/4/95		
	NO REMARKABLE OBSERVATIONS	8/7/95 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 417	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
6- 418	NO REMARKABLE OBSERVATIONS	8/31/93 - 2/27/95		
	LETHARGIC (WEAK)	2/28/95 - 3/7/95	3/7/95	MORIBUND SACRIFICE
6- 419	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
6- 420	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 421	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/13/95	3/14/95	FOUND DEAD *
6- 422	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
6- 423	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
6- 424	NO REMARKABLE OBSERVATIONS	8/31/93 - 6/26/95	6/27/95	FOUND DEAD *
6- 425	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/17/95		
	LETHARGIC (WEAK)	7/18/95 - 8/24/95	8/25/95	FINAL SACRIFICE
6- 426	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 427	NO REMARKABLE OBSERVATIONS	8/31/93 - 1/9/95		
	PARALYSIS - FRONT LEGS	1/10/95 - 1/11/95	1/11/95	MORIBUND SACRIFICE
6- 428	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 429	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
6- 430	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/4/95	7/4/95	MORIBUND SACRIFICE
6- 431	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
6- 432	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/12/94		
	EXCESSIVE DRINKING	12/13/94 - 6/30/95	6/30/95	MORIBUND SACRIFICE
6- 433	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
6- 434	NO REMARKABLE OBSERVATIONS	8/31/95 - 7/17/95		
	EYE CATARACT - LEFT	7/18/95 - 8/24/95		
	EYE - RIGHT - BLOOD FILLED	8/7/95 - 8/24/95	8/31/95	FINAL SACRIFICE
6- 435	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 436	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
7- 437	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
7- 438	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
7- 439	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED



CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
7- 440	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
7- 441	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
7- 442	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
7- 443	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
7- 444	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
7- 445	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
7- 446	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 447	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 448	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/94		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 449	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/94		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 450	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 451	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 452	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 453	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 454	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 455	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
7- 456	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 457	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 458	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 459	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 460	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/94		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 461	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 462	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 463	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 464	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 465	NO REMARKABLE OBSERVATIONS	8/31/93 - 5/15/95		
	MASS - ON BACK	5/16/95 - 8/24/95	8/31/95	FINAL SACRIFICE
7- 466	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/2/95	8/2/95	MORIBUND SACRIFICE
7- 467	NO REMARKABLE OBSERVATIONS	8/31/93 - 5/15/95		
	LETHARGIC (WEAK)	5/16/95 - 5/23/95		

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
	NOT EATING OR DRINKING	5/22/95 - 5/23/95	5/23/95	MORIBUND SACRIFICE
7- 468	NO REMARKABLE OBSERVATIONS	8/31/93 - 5/15/95		
	BLOATED ABDOMEN	5/16/95 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 469	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 470	NO REMARKABLE OBSERVATIONS	8/31/93 - 5/13/94	5/13/94	MORIBUND SACRIFICE
7- 471	NO REMARKABLE OBSERVATIONS	8/31/93 - 11/21/94		
	EYES - BLOODY DISCHARGE	11/22/94 - 11/23/94		
	DEHYDRATION - SEVERE	11/23/94	11/23/94	MORIBUND SACRIFICE
7- 472	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 473	NO REMARKABLE OBSERVATIONS	8/31/93 - 2/6/95		
	MASS - ON BACK	2/7/95 - 6/13/95	6/13/95	MORIBUND SACRIFICE
7- 474	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 475	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/6/95		
	PREPUTIAL GLAND MASS	8/7/95 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 476	NO REMARKABLE OBSERVATIONS	8/31/93 - 1/30/95		
	MASS - ABDOMINAL	1/31/95 - 2/7/95		
	BLOATED ABDOMEN	2/7/95 - 3/7/95		
	RESTRICTED MOVEMENT	3/6/95 - 3/7/95	3/7/95	MORIBUND SACRIFICE
7- 477	NO REMARKABLE OBSERVATIONS	8/31/93 - 4/24/95	4/25/95	FOUND DEAD *
7- 478	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 479	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/26/95	8/27/95	FOUND DEAD
7- 480	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/13/95	8/14/95	FOUND DEAD
7- 481	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 7/17/95		
	BLOATED ABDOMEN	7/18/95 - 8/24/95		
	NOT EATING OR DRINKING	8/21/95 - 8/24/95	8/25/95	FINAL SACRIFICE
7- 482	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/6/95		
	MASS - LEFT SIDE OF FACE	8/7/95 - 8/11/95	8/11/95	MORIBUND SACRIFICE
7- 483	NO REMARKABLE OBSERVATIONS	8/31/93 - 2/3/95	2/3/95	MORIBUND SACRIFICE
7- 484	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/6/95		
	LETHARGIC (WEAK)	8/7/95 - 8/18/95	8/18/95	MORIBUND SACRIFICE
7- 485	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
7- 486	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/6/95		
	LETHARGIC (WEAK)	8/7/95 - 8/11/95		
	NOT EATING OR DRINKING	8/7/95 - 8/11/95	8/11/95	MORIBUND SACRIFICE
7- 487	NO REMARKABLE OBSERVATIONS	8/31/93 - 6/26/95		

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
	CNS PROBLEMS	6/27/95 - 8/4/95	8/7/95	FOUND DEAD
7- 488	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/6/95	3/7/95	FOUND DEAD *
7- 489	NO REMARKABLE OBSERVATIONS	8/31/93 - 6/18/95	6/19/95	FOUND DEAD *
7- 490	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/4/94		
	FOOT - PUNCTURE ON PAD	12/5/94 - 12/12/94		
	NO REMARKABLE OBSERVATIONS	12/13/94 - 6/20/95	6/21/95	FOUND DEAD *
7- 491	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
7- 492	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/17/95		
	LETHARGIC (WEAK)	7/18/95 - 8/2/95	8/2/95	MORIBUND SACRIFICE
7- 493	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 494	NO REMARKABLE OBSERVATIONS	8/31/93 - 5/23/94		
	TAIL - WART-LIKE GROWTHS	5/24/94 - 8/24/95		
	MASS - ABDOMINAL	3/28/95 - 8/24/95		
	MASS - RIGHT SIDE OF FACE	8/7/95 - 8/24/95	8/25/95	FINAL SACRIFICE
7- 495	NO REMARKABLE OBSERVATIONS	8/31/93 - 4/15/95	4/16/95	FOUND DEAD
7- 496	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 497	NO REMARKABLE OBSERVATIONS	8/31/93 - 4/9/95	4/10/95	FOUND DEAD *
7- 498	NO REMARKABLE OBSERVATIONS	8/31/93 - 5/14/95		
	EYE CATARACT - LEFT	5/15/95 - 6/8/95		
	WEIGHT LOSS	5/15/95 - 6/8/95		
	LETHARGIC (WEAK)	5/16/95 - 6/8/95	6/8/95	FOUND DEAD *
7- 499	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/20/95		
	EYE CATARACTS - BOTH	8/21/95 - 8/24/95		
	MASS - UNDER LEFT FRONT LEG	8/21/95 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 500	NO REMARKABLE OBSERVATIONS	8/31/93 - 4/24/95		
	BLOATED ABDOMEN	4/25/95 - 5/4/95	5/4/95	MORIBUND SACRIFICE
7- 501	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/2/95		
	SKIN - YELLOW COLORED	8/2/95	8/2/95	MORIBUND SACRIFICE
7- 502	NO REMARKABLE OBSERVATIONS	8/31/93 - 1/9/95		
	EYE CATARACT - LEFT	1/10/95 - 6/30/95	6/30/95	MORIBUND SACRIFICE
7- 503	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
7- 504	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
7- 505	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
7- 506	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 5/14/95		
	BLOATED ABDOMEN	5/15/95 - 6/23/95		

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
	EYE CATARACT - LEFT	6/26/95 - 8/24/95	8/31/95	FINAL SACRIFICE
7- 507	NO REMARKABLE OBSERVATIONS	8/31/93 - 4/24/95		
	LETHARGIC (WEAK)	4/25/95 - 5/12/95		
	NOT EATING OR DRINKING	4/25/95 - 5/12/95	5/12/95	MORIBUND SACRIFICE
7- 508	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
7- 509	NO REMARKABLE OBSERVATIONS	8/31/93 - 6/4/95		
	WEIGHT LOSS	6/5/95 - 6/13/95	6/13/95	MORIBUND SACRIFICE
7- 510	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
8- 511	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 512	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 513	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 514	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 515	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 516	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 517	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 518	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 519	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 520	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/1/93	12/1/93	3 MONTH SACRIFICE
8- 521	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 522	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 523	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 524	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 525	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 526	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 527	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 528	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 529	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 530	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/2/94	3/2/94	6 MONTH SACRIFICE
8- 531	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
8- 532	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
8- 533	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
8- 534	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
8- 535	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
8- 536	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
8- 537	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
8- 538	NO REMARKABLE OBSERVATIONS	8/31/93 - 6/2/94		
	CUT - PAD OF RIGHT REAR PAW	6/3/94 - 6/5/94		
	NO REMARKABLE OBSERVATIONS	6/6/94 - 9/1/94	9/1/94	12 MONTH SACRIFICE

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
8- 539	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
8- 540	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/1/94	9/1/94	12 MONTH SACRIFICE
8- 541	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
8- 542	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
8- 543	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/28/94		
	DRAGGING HIND LEGS	3/29/94	3/29/94	MORIBUND SACRIFICE
8- 544	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/6/95		
	MASS - ON BACK	8/7/95 - 8/24/95	8/31/95	FINAL SACRIFICE
8- 545	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 546	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 547	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 548	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 549	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 550	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 551	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
8- 552	NO REMARKABLE OBSERVATIONS	8/31/93 - 11/28/94		
	WEIGHT LOSS	11/29/94 - 12/4/94	12/4/94	FOUND DEAD *
8- 553	NO REMARKABLE OBSERVATIONS	8/31/93 - 9/13/93		
	SORE - AT IMPLANT SITE	9/14/93 - 9/21/93		
	NO REMARKABLE OBSERVATIONS	9/22/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 554	NO REMARKABLE OBSERVATIONS	8/31/93 - 12/4/94		
	MASS - ABDOMINAL - LEFT REAR LEG	12/5/94 - 1/2/95		
	MASS - ABSCESED	1/3/95 - 1/11/95	1/11/95	MORIBUND SACRIFICE
8- 555	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/4/95	8/4/95	MORIBUND SACRIFICE
8- 556	NO REMARKABLE OBSERVATIONS	8/31/93 - 3/13/95		
	MASS - ABDOMINAL	3/14/95 - 7/18/95		
	MASS - ABDOMINAL	6/5/95 - 7/18/95		
	WEIGHT LOSS	6/27/95 - 7/18/95		
	LETHARGIC (WEAK)	7/17/95 - 7/18/95	7/18/95	MORIBUND SACRIFICE
8- 557	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE
8- 558	NO REMARKABLE OBSERVATIONS	8/31/93 - 1/9/95		
	EYES - CRUSTY	1/10/95 - 1/11/95		
	LETHARGIC (WEAK)	1/10/95 - 1/11/95		
	NOT EATING	1/10/95 - 1/11/95	1/11/95	MORIBUND SACRIFICE
8- 559	NO REMARKABLE OBSERVATIONS	8/31/93 - 10/3/94		
	LETHARGIC (WEAK)	10/4/94 - 10/11/94		
	WEIGHT LOSS	10/4/94 - 10/11/94	10/11/94	FOUND DEAD *

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

CLINICAL OBSERVATIONS  
STUDY NO. 93-004 (TNB)

ANIMAL NUMBER	CLINICAL OBSERVATIONS	DURATION OF OBSERVATION	DATE OF DEATH	DISPOSITION
8- 560	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/13/95	8/14/95	FOUND DEAD
8- 561	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/25/95	FINAL SACRIFICE
8- 562	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 563	NO REMARKABLE OBSERVATIONS	8/31/93 - 7/30/95	7/31/95	FOUND DEAD *
8- 564	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 565	NO REMARKABLE OBSERVATIONS	8/31/93 - 6/1/95		
	MASS - ON BACK	6/2/95 - 8/24/95	8/31/95	FINAL SACRIFICE
8- 566	NO REMARKABLE OBSERVATIONS	8/31/93 - 4/24/95		
	LETHARGIC (WEAK)	4/25/95 - 5/4/95	5/4/95	MORIBUND SACRIFICE
8- 567	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/28/95	FINAL SACRIFICE
8- 568	NO REMARKABLE OBSERVATIONS	8/31/93 - 1/30/95		
	EYE CATARACTS - BOTH	1/31/95 - 8/24/95	8/25/95	FINAL SACRIFICE
8- 569	NO REMARKABLE OBSERVATIONS	8/31/93 - 6/30/95	7/1/95	MORIBUND SACRIFICE
8- 570	NO REMARKABLE OBSERVATIONS	8/31/93 - 8/24/95	8/31/95	FINAL SACRIFICE

\* ADVANCED AUTOLYSIS - NO TISSUES SAVED

APPENDIX G  
OPHTHALMOLOGY DATA

## Ophthalmology Report

David A. Wilkie DVM, MS  
Diplomate ACVO

**Introduction**

The following are results of ocular examinations. All ocular examinations were performed by a Board-Certified Veterinary Ophthalmologist.

**Materials and Methods**

A preliminary ophthalmic examination was performed on the eyes of all rats by Dr David Wilkie DVM, MS, Dip. ACVO. Examinations included:

1. Biomicroscopic examination, using a Zeiss HSO-10 biomicroscope, following dilation of the pupils with 1.0% tropicamide (Mydracyl®).
2. Indirect ophthalmoscopic examination, using a 30 diopter lens, following dilation of the pupils with 1.0% tropicamide (Mydracyl®).

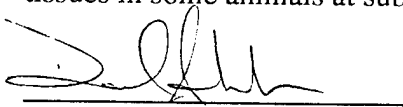
**Results**Initial Examination

The following animals were eliminated from study as a result of ocular abnormalities: 31, 90. Of the remaining test animals the following abnormalities were noted:

Normal	10, 103, 220, 246
Hyphema	90
Corneal dystrophy (crystals) - Moderate	31
Corneal dystrophy (crystals) - Mild	All Remaining Animals, including animal #90 were affected with mild corneal dystrophy OU

Conclusions

The above findings are compatible with breed and species associated ocular abnormalities. The animals eliminated from testing had either corneal dystrophy of severity greater than mild or hyphema. Except for animals 10, 103, 220, and 246, all of the animals remaining on test have mild corneal dystrophy affecting both eyes, a common finding in Fisher 344 rats of both sexes. In a chronic study such as this the corneal lesions will progress significantly and may interfere with examination of the intraocular tissues in some animals at subsequent examinations.



Date:

9/7/93

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## Ophthalmology Report

David A. Wilkie DVM, MS  
Diplomate ACVO

### Introduction

The following are results of ocular examinations. All ocular examinations were performed by a Board-Certified Veterinary Ophthalmologist.

### Materials and Methods

An final ophthalmic examination was performed on the eyes of all rats by Dr David Wilkie DVM, MS, Dip. ACVO prior to completion of the study. Examinations included:

1. Biomicroscopic examination, using a Zeiss HSO-10 biomicroscope, following dilation of the pupils with 1.0% tropicamide (Mydriacyl®).
2. Indirect ophthalmoscopic examination, using a 30 diopter lens, following dilation of the pupils with 1.0% tropicamide (Mydriacyl®).

**Results**Final Examination**Females:**Corneal dystrophy

Mild

**OD**  
31**OS****OU**48, 132, 182, 201, 203, 207,  
208, 263, 269, 270, 283

Moderate

**OD****OS****OU**33, 34, 35, 36, 37, 38, 39, 41,  
42, 44, 45, 46, 47, 51, 52, 55,  
56, 57, 58, 61, 62, 63, 64, 65,  
69, 70, 71, 72, 73, 74, 75, 104,  
105, 107, 108, 109, 111, 117,  
118, 120, 121, 122, 124, 126,  
128, 129, 130, 131, 134, 135,  
137, 138, 139, 140, 143, 144,  
145, 146, 147, 148, 150, 180,  
181, 184, 186, 187, 192, 193,  
194, 196, 198, 199, 209, 210,  
211, 212, 213, 214, 216, 219,  
220, 222, 224, 225, 255, 256,  
257, 258, 262, 264, 265, 267,  
268, 271, 273, 274, 281, 282,  
285

Marked

**OD****OS****OU**

149

Red Ocular Discharge

Mild

**OD****OS**

44, 135, 223

**OU**48, 50, 51, 55, 61, 62, 63, 75,  
131, 137, 212, 282

Moderate

**OD****OS****OU**28, 29, 30, 40, 46, 52, 104,  
126, 182, 274

Marked

**OD****OS****OU**

27

**Females: continued**Cataract

Mild

**OD**  
31**OS****OU**  
75, 131, 190, 263

Moderate

**OD****OS**  
126**OU**  
45, 50, 51, 56, 104, 122, 124,  
125, 132, 143, 144, 150, 184,  
186, 187, 193, 210, 220, 222,  
257, 264

Marked

**OD**  
73**OS**  
31**OU**  
27, 28, 29, 30, 32, 34, 35, 36,  
37, 38, 39, 40, 41, 42, 44, 46,  
47, 48, 52, 55, 57, 58, 61, 62,  
63, 64, 65, 69, 70, 105, 107,  
108, 109, 111, 115, 117, 118,  
121, 128, 129, 130, 137, 138,  
139, 140, 145, 146, 147, 148,  
149, 180, 181, 182, 196, 198,  
199, 201, 203, 207, 208, 209,  
211, 212, 213, 214, 225, 258,  
262, 265, 267, 268, 269, 270,  
271, 273, 274Keratitis

Mild

**OD****OS****OU**

Moderate

**OD****OS****OU**

Marked

**OD****OS****OU**  
32

**Females: continued**Iritis

Mild

**OD****OS****OU**

42, 145, 181, 213, 265

Moderate

**OD****OS****OU**

214

64, 117, 118, 129, 138, 146,  
147, 148, 267, 268, 271

Marked

**OD****OS****OU**

214

27, 32, 40, 207, 208

Hyphema

Present

**OD****OS****OU**

214

**Males:**Corneal dystrophy

Mild

**OD****OS****OU**315, 317, 318, 320, 344, 349,  
472, , 494, 541, 542, 544, 551,  
562

Moderate

**OD****OS****OU**321, 324, 325, 327, 328, 329,  
330, 331, 332, 333, 334, 335,  
337, 338, 341, 342, 343, 345,  
346, 347, 348, 350, 352, 353,  
354, 356, 357, 391, 395, 398,  
399, 400, 402, 403, 404, 406,  
407, 408, 410, 411, 413, 414,  
416, 417, 419, 420, 422, 423,  
425, 426, 428, 429, 431, 433,  
434, 435, 465, 468, 469, 474,  
475, 478, 479, 481, 485, 491,  
493, 496, 499, 503, 505, 506,  
510, 545, 546, 547, 548, 549,  
550, 553, 557, 561, 564, 565,  
567, 568, 570

Marked

**OD****OS****OU**

508

Red Ocular Discharge

Mild

**OD****OS**

353

**OU**

338, 549

Moderate

**OD****OS****OU**

505

Marked

**OD****OS****OU**

**Males: continued**Cataract

Mild

**OD****OS****OU**321, 324, 325, 334, 335, 337,  
347, 395, 400, 404, 406, 407,  
410, 479, 541, 545

Moderate

**OD****OS****OU**320, 328, 332, 341, 342, 343,  
344, 348, 349, 352, 398, 428,  
433, 465, 468, 472, 478, 491,  
494, 508, 548, 549, 550, 551

Marked

**OD**

331, 414

**OS**

354

**OU**315, 317, 318, 327, 329, 350,  
356, 357, 402, 403, 408, 413,  
425, 435, 469, 485, 496, 499,  
546, 547, 564, 565, 567, 568Keratitis

Mild

**OD****OS****OU**

Moderate

**OD****OS****OU**

Marked

**OD****OS****OU**Iritis

Mild

**OD**

331

**OS****OU**

315

Moderate

**OD****OS****OU**

329, 568

Marked

**OD****OS****OU**Hyphema

Present

**OD****OS**

434

**OU**

**Conclusions**

All animals used in this study were affected with mild corneal dystrophy prior to the initiation of the study. All animals examined at the final examination were affected with ocular abnormalities. In those animals affected with a cataract graded as severe, no posterior segment was visible.

Corneal dystrophy is a common finding in Fisher 344 rats of both sexes. It was present prior to study initiation and as expected has progressed in many animals. In some, it has resulted in keratitis and also, likely accounts for the red ocular discharge observed.

Cataracts can be the result of aging, trauma from orbital bleeding or may be a treatment related effect. It is typical for a significant portion of rats of this age to be affected with cataracts. Also, cataracts will result in iritis through lens-induced-uveitis, an immune response to lens protein antigen. Iritis may also result in the ocular discharge observed.

As I am not aware of treatment groups, I cannot comment on the distribution of the lesions by treatment group, but it would appear that all lesions are distributed well and that a treatment-related ophthalmic effect was not observed in the animals on this study.



Date:

10/30/95

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APPENDIX H

GROSS AND  
HISTOPATHOLOGY  
DATA



## REPORTS CODE TABLE

N	Tissues within normal histological limits
A	Autolysis precluding adequate evaluation
U	Tissues unavailable/unsuitable for evaluation
P	Present
I	Bilateral
L	Unilateral

1	Minimal
2	Mild
3	Moderate
4	Marked

## Abbreviation List

NOS	Not Otherwise Specified
O.D.	Right Eye
O.S.	Left Eye
O.U.	Both Eyes

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
BRAIN	# EX 44	1	0	26
Granular Cell Tumor	0 0.0	1 100.0	0 0.0	0 0.0
Astrocytoma	0 0.0	0 0.0	0 0.0	1 4.0
Hydrocephalus	0 0.0	0 0.0	0 0.0	1 4.0
Necrosis	0 0.0	0 0.0	0 0.0	1 4.0
Hemorrhage	0 0.0	0 0.0	0 0.0	1 4.0
Astrocytosis	0 0.0	0 0.0	0 0.0	1 4.0
SCIATIC NERVE	# EX 44	0	0	26
SPINAL CORD	# EX 44	0	0	26
Hemorrhage	0 0.0	0 0.0	0 0.0	1 4.0
Necrosis	0 0.0	0 0.0	0 0.0	1 4.0
SALIVARY GLAND	# EX 44	0	0	27
Lymphocytic Infiltrates	1 2.0	0 0.0	0 0.0	1 4.0
Degeneration, Acinar	1 2.0	0 0.0	0 0.0	2 7.0
PANCREAS	# EX 44	0	0	27
Islet Cell Adenoma	0 0.0	0 0.0	0 0.0	1 4.0
Degeneration, Acinar	22 50.0	0 0.0	0 0.0	15 56.0
Vacuolization, Cytoplasmic	1 2.0	0 0.0	0 0.0	0 0.0
Inflammation, Chronic	10 23.0	0 0.0	0 0.0	8 30.0
Lymphocytic Infiltrates	4 9.0	0 0.0	0 0.0	1 4.0
MANDIBULAR LYMPH NODE	# EX 43	3	2	27
Mononuclear Cell Leukemia	2 5.0	1 33.0	2 100.0	3 11.0
Plasmacytosis	30 70.0	2 67.0	1 50.0	18 67.0
Hyperplasia, Lymphocytic	2 5.0	0 0.0	0 0.0	2 7.0
Inflammation, Chronic	1 2.0	1 33.0	0 0.0	1 4.0
Inflammation, Suppurative	0 0.0	0 0.0	1 50.0	0 0.0
Pigmentation, NOS	10 23.0	0 0.0	0 0.0	10 37.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
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PROJECT SUMMARY

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FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
MANDIBULAR LYMPH NODE	# EX 43	3	2	27
Hemorrhage	8 19.0	2 67.0	2 100.0	6 22.0
ZYMBAL'S GLAND	# EX 43	0	1	26
Sebacous Cell Adenoma	1 2.0	0 0.0	1 100.0	0 0.0
Cyst, NOS	1 2.0	0 0.0	0 0.0	0 0.0
PITUITARY	# EX 44	18	21	27
Carcinoma, Pars Distalis	2 5.0	2 11.0	3 14.0	2 7.0
Adenoma, Pars Distalis	12 27.0	11 61.0	16 76.0	9 33.0
Adenoma, Pars Intermedia	0 0.0	0 0.0	1 5.0	0 0.0
Cyst, NOS, Pars Distalis	8 18.0	2 11.0	0 0.0	1 4.0
Cyst, NOS, Pars Distalis, Multiple	0 0.0	0 0.0	0 0.0	1 4.0
Hyperplasia, NOS, Pars Distalis	10 23.0	3 17.0	2 10.0	9 33.0
ADRENALS	# EX 44	4	1	26
Pheochromocytoma	0 0.0	1 25.0	0 0.0	0 0.0
Adenoma, Cortical	1 2.0	0 0.0	0 0.0	1 4.0
Hyperplasia, NOS, Cortical	0 0.0	1 25.0	0 0.0	2 8.0
Hyperplasia, NOS, Medulla	1 2.0	0 0.0	0 0.0	2 8.0
Accessory Cortical Nodule	0 0.0	0 0.0	0 0.0	3 12.0
Vacuolization, Cytoplasmic, Cortical	4 9.0	1 25.0	0 0.0	8 31.0
Pigmentation, NOS	0 0.0	0 0.0	0 0.0	1 4.0
Lymphocytic Infiltrates	1 2.0	0 0.0	0 0.0	1 4.0
Cyst, NOS	1 2.0	0 0.0	0 0.0	0 0.0
Atrophy, NOS	0 0.0	1 25.0	0 0.0	0 0.0
Degeneration, Cystic	0 0.0	0 0.0	1 100.0	0 0.0
Hemorrhage	0 0.0	0 0.0	0 0.0	1 4.0
THYROID	# EX 44	0	1	25
C-Cell Adenoma	1 2.0	0 0.0	1 100.0	0 0.0
Hyperplasia, C-Cell	7 16.0	0 0.0	0 0.0	6 24.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

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STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
THYROID	# EX 44	0	1	25
Cyst, Follicular	2 5.0	0 0.0	0 0.0	0 0.0
Degeneration, Follicular	1 2.0	0 0.0	0 0.0	0 0.0
Mineralization, NOS	0 0.0	0 0.0	0 0.0	1 4.0
PARATHYROID	# EX 42	0	0	24
Adenoma	1 2.0	0 0.0	0 0.0	0 0.0
TRACHEA	# EX 44	0	0	27
ESOPHAGUS	# EX 44	0	0	27
THYMUS	# EX 37	1	0	25
Mononuclear Cell Leukemia	1 3.0	0 0.0	0 0.0	3 12.0
Lipoma	0 0.0	0 0.0	0 0.0	1 4.0
Necrosis	0 0.0	0 0.0	0 0.0	1 4.0
Cyst, NOS	1 3.0	0 0.0	0 0.0	0 0.0
Atrophy, NOS	36 97.0	1 100.0	0 0.0	21 84.0
Pigmentation, NOS	0 0.0	0 0.0	0 0.0	1 4.0
Lymphocytic Infiltrates	0 0.0	0 0.0	0 0.0	1 4.0
HEART	# EX 44	1	0	27
Schwannoma	0 0.0	1 100.0	0 0.0	0 0.0
Degeneration, Myocardial	36 82.0	1 100.0	0 0.0	23 85.0
Mineralization, NOS	43 98.0	1 100.0	0 0.0	27 100.0
Lymphocytic Infiltrates	1 2.0	0 0.0	0 0.0	0 0.0
Inflammation, Chronic	39 89.0	1 100.0	0 0.0	18 67.0
Fibrosis	0 0.0	1 100.0	0 0.0	0 0.0
AORTA	# EX 44	0	0	27
Mineralization, NOS	8 18.0	0 0.0	0 0.0	6 22.0
Inflammation, Chronic	1 2.0	0 0.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
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Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
COLON	# EX 44	0	0	26
Lymphocytic Infiltrates	1 2.0	0 0.0	0 0.0	0 0.0
JEJUNUM	# EX 44	0	0	26
LIVER	# EX 44	39	43	27
Hepatocellular Carcinoma	0 0.0	0 0.0	0 0.0	1 4.0
Histiocytic Sarcoma	0 0.0	1 3.0	0 0.0	0 0.0
Hepatocellular Adenoma	1 2.0	0 0.0	3 7.0	0 0.0
Hyperplasia, Hepatocellular	0 0.0	2 5.0	0 0.0	0 0.0
Bile Duct Hyperplasia	32 73.0	28 72.0	28 65.0	15 56.0
Diaphragmatic Nodule	1 2.0	1 3.0	1 2.0	1 4.0
Vacuolated Cell Focus	0 0.0	0 0.0	2 5.0	0 0.0
Eosinophilic Focus	0 0.0	1 3.0	3 7.0	1 4.0
Eosinophilic Focus, Multiple	0 0.0	1 3.0	1 2.0	0 0.0
Basophilic Focus	6 14.0	1 3.0	0 0.0	0 0.0
Basophilic Focus, Multiple	27 61.0	31 79.0	35 81.0	20 74.0
Vacuolization, Hepatocellular	3 7.0	3 8.0	7 16.0	7 26.0
Necrosis, Hepatocellular	16 36.0	10 26.0	16 37.0	11 41.0
Hepatocytomegaly	0 0.0	1 3.0	6 14.0	3 11.0
Biliary Fibrosis	10 23.0	14 36.0	18 42.0	4 15.0
Pigmentation, NOS	0 0.0	0 0.0	1 2.0	1 4.0
Inflammation, Chronic/Active	0 0.0	2 5.0	2 5.0	0 0.0
Inflammation, Chronic	43 98.0	25 64.0	26 60.0	21 78.0
Degeneration, Cystic	0 0.0	2 5.0	0 0.0	0 0.0
Lymphocytic Infiltrates	4 9.0	8 21.0	12 28.0	7 26.0
Extramedullary Hematopoiesis	1 2.0	0 0.0	0 0.0	0 0.0
Mineralization, NOS	0 0.0	0 0.0	1 2.0	1 4.0
Thrombus	0 0.0	0 0.0	0 0.0	1 4.0
Karyomegaly	0 0.0	0 0.0	1 2.0	0 0.0
Congestion	2 5.0	0 0.0	0 0.0	0 0.0
Mitotic Alteration	1 2.0	0 0.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
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Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
SPLEEN	# EX 44	39	44	27
Mononuclear Cell Leukemia	3 7.0	7 18.0	13 30.0	7 26.0
Fibrosarcoma	0 0.0	0 0.0	1 2.0	0 0.0
Histiocytic Sarcoma	0 0.0	1 3.0	0 0.0	0 0.0
Fibrosis	2 5.0	7 18.0	4 9.0	3 11.0
Cyst, Capsular, Multiple	0 0.0	0 0.0	0 0.0	1 4.0
Hyperplasia, Lymphocytic	1 2.0	3 8.0	0 0.0	0 0.0
Hyperplasia, Erythroid Cell	41 93.0	23 59.0	19 43.0	15 56.0
Hyperplasia, Myeloid	1 2.0	3 8.0	3 7.0	2 7.0
Pigmentation, NOS	41 93.0	27 69.0	20 45.0	18 67.0
Inflammation, Chronic	1 2.0	0 0.0	0 0.0	0 0.0
TONGUE	# EX 44	0	0	27
Mineralization, NOS	40 91.0	0 0.0	0 0.0	25 93.0
Hemorrhage	0 0.0	0 0.0	0 0.0	1 4.0
Inflammation, Chronic	1 2.0	0 0.0	0 0.0	1 4.0
Inflammation, Chronic/Active	1 2.0	0 0.0	0 0.0	0 0.0
SKELETAL MUSCLE	# EX 44	0	0	27
Mineralization, NOS	0 0.0	0 0.0	0 0.0	1 4.0
LUNGS	# EX 44	39	43	26
Histiocytic Sarcoma	0 0.0	1 3.0	0 0.0	0 0.0
Osteosarcoma, Metastatic	0 0.0	1 3.0	0 0.0	0 0.0
Squamous Cell Carcinoma, Metastatic	0 0.0	0 0.0	1 2.0	0 0.0
Alveolar/Bronchiolar Hyperplasia	0 0.0	0 0.0	1 2.0	1 4.0
Inflammation, Chronic	14 32.0	12 31.0	8 19.0	8 31.0
Inflammation, Chronic/Active	0 0.0	0 0.0	1 2.0	3 12.0
Lymphocytic Infiltrates	4 9.0	7 18.0	12 28.0	8 31.0
Mineralization, NOS	22 50.0	10 26.0	19 44.0	12 46.0
Pigmentation, NOS	1 2.0	0 0.0	0 0.0	0 0.0
Hemorrhage	0 0.0	0 0.0	0 0.0	1 4.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
LUNGS	# EX 44	39	43	26
Congestion	0 0.0	1 3.0	0 0.0	1 4.0
KIDNEY	# EX 44	39	43	26
Histiocytic Sarcoma	0 0.0	1 3.0	0 0.0	0 0.0
Lipoma	1 2.0	0 0.0	0 0.0	0 0.0
Chronic Progressive Nephropathy	44 100.0	38 97.0	42 98.0	25 96.0
Cytoplasmic Droplets	44 100.0	39 100.0	12 28.0	12 46.0
Lymphocytic Infiltrates	2 5.0	1 3.0	2 5.0	2 8.0
Vacuolization, Cytoplasmic	0 0.0	1 3.0	4 9.0	0 0.0
Thrombus	1 2.0	0 0.0	0 0.0	0 0.0
Mineralization, NOS, Medulla	44 100.0	39 100.0	43 100.0	26 100.0
Pigmentation, NOS	44 100.0	39 100.0	21 49.0	25 96.0
Dilatation, Pelvis	0 0.0	0 0.0	0 0.0	1 4.0
URINARY BLADDER	# EX 44	1	0	27
Hyperplasia, Epithelial	1 2.0	0 0.0	0 0.0	0 0.0
Lymphocytic Infiltrates	0 0.0	0 0.0	0 0.0	2 7.0
STOMACH	# EX 44	0	1	26
Mononuclear Cell Leukemia	0 0.0	0 0.0	1 100.0	0 0.0
Hyperkeratosis, Forestomach	0 0.0	0 0.0	0 0.0	1 4.0
Hyperplasia, Epithelial, Forestomach	2 5.0	0 0.0	0 0.0	0 0.0
Pigmentation, NOS, Glandular	0 0.0	0 0.0	0 0.0	1 4.0
Degeneration, Cystic, Glandular	0 0.0	0 0.0	0 0.0	1 4.0
Necrosis, Glandular	0 0.0	0 0.0	0 0.0	1 4.0
DUODENUM	# EX 44	0	0	26
Lymphocytic Infiltrates	1 2.0	0 0.0	0 0.0	0 0.0
Ectopic Pancreas	1 2.0	0 0.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

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FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1		2		3		4	
NUMBER OF ANIMALS:	44		40		44		28	
	#	%	#	%	#	%	#	%
ILEUM	# EX 44		0		0		26	
Lymphocytic Infiltrates	1	2.0	0	0.0	0	0.0	0	0.0
CECUM	# EX 44		0		0		26	
Lymphocytic Infiltrates	1	2.0	0	0.0	0	0.0	0	0.0
RECTUM	# EX 44		0		0		26	
MESENTERIC LYMPH NODE	# EX 44		2		1		26	
Mononuclear Cell Leukemia	3	7.0	2	100.0	1	100.0	4	15.0
Plasmacytosis	0	0.0	0	0.0	0	0.0	3	12.0
Hyperplasia, Lymphocytic	0	0.0	0	0.0	0	0.0	2	8.0
Inflammation, Chronic	37	84.0	0	0.0	0	0.0	23	88.0
Necrosis	0	0.0	0	0.0	0	0.0	1	4.0
Pigmentation, NOS	31	70.0	0	0.0	0	0.0	18	69.0
Hemorrhage	2	5.0	0	0.0	1	100.0	4	15.0
Dilatation, Medulla	0	0.0	1	50.0	0	0.0	0	0.0
OVARIES	# EX 43		5		3		26	
Granulosa Cell Tumor, Malignant	0	0.0	0	0.0	1	33.0	0	0.0
Granulosa Cell Tumor, Benign	1	2.0	0	0.0	0	0.0	0	0.0
Thecoma	0	0.0	1	20.0	0	0.0	0	0.0
Cyst, Luteal	1	2.0	0	0.0	0	0.0	0	0.0
Cyst, Parovarian	1	2.0	4	80.0	2	67.0	1	4.0
Cyst, Follicular	6	14.0	0	0.0	0	0.0	1	4.0
Cyst, NOS	3	7.0	0	0.0	0	0.0	1	4.0
Hyperplasia, Epithelial Cell	0	0.0	0	0.0	1	33.0	0	0.0
Hyperplasia, Interstitial Cell	2	5.0	0	0.0	0	0.0	2	8.0
Lymphocytic Infiltrates	0	0.0	0	0.0	0	0.0	1	4.0
Pigmentation, NOS	1	2.0	0	0.0	0	0.0	2	8.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)



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PROJECT SUMMARY

STUDY ID : 2 Year Study

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FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
UTERUS	# EX 44	6	10	25
Leiomyosarcoma	0 0.0	0 0.0	1 10.0	0 0.0
Endometrial Adenocarcinoma	1 2.0	0 0.0	0 0.0	1 4.0
Endometrial Stromal Polyp	7 16.0	5 83.0	5 50.0	2 8.0
Cystic Endometrial Stromal Polyp	0 0.0	0 0.0	0 0.0	1 4.0
Endometrial Glandular Hyperplasia	1 2.0	0 0.0	1 10.0	0 0.0
Cystic Endometrial Glandular Hyperplasia	3 7.0	0 0.0	0 0.0	4 16.0
Cystic Endometrial Glands	1 2.0	0 0.0	1 10.0	1 4.0
Inflammation, Chronic/Active	0 0.0	0 0.0	1 10.0	0 0.0
Inflammation, Suppurative	0 0.0	0 0.0	0 0.0	1 4.0
Dilatation, Lumen	13 30.0	0 0.0	1 10.0	6 24.0
Lymphocytic Infiltrates	1 2.0	0 0.0	0 0.0	2 8.0
Necrosis	0 0.0	0 0.0	1 10.0	0 0.0
Fibrosis, Stromal	0 0.0	0 0.0	1 10.0	0 0.0
Hemorrhage	0 0.0	1 17.0	1 10.0	0 0.0
Mononuclear Cell Leukemia	0 0.0	0 0.0	1 10.0	0 0.0
MAMMARY GLAND	# EX 44	9	12	26
Adenocarcinoma	0 0.0	1 11.0	2 17.0	0 0.0
Fibroadenoma	4 9.0	7 78.0	10 83.0	6 23.0
Adenoma	0 0.0	1 11.0	0 0.0	0 0.0
Adenoma, Cystic	0 0.0	0 0.0	0 0.0	1 4.0
Galactocele	0 0.0	1 11.0	0 0.0	1 4.0
Galactocele, Multiple	0 0.0	0 0.0	1 8.0	0 0.0
Dilatation, Alveolar/Ductal	18 41.0	0 0.0	0 0.0	15 58.0
Hyperplasia, Epithelial	1 2.0	0 0.0	0 0.0	0 0.0
Necrosis	0 0.0	1 11.0	0 0.0	1 4.0
Inflammation, Chronic/Active	0 0.0	0 0.0	0 0.0	1 4.0
Inflammation, Suppurative	0 0.0	1 11.0	0 0.0	0 0.0
Lymphocytic Infiltrates	0 0.0	0 0.0	0 0.0	1 4.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
SKIN	# EX 44	3	1	26
Squamous Cell Carcinoma	0 0.0	0 0.0	1 100.0	0 0.0
Sarcoma, NOS	0 0.0	0 0.0	1 100.0	0 0.0
Lipoma	1 2.0	0 0.0	0 0.0	0 0.0
Keratoacanthoma	1 2.0	0 0.0	0 0.0	0 0.0
Mononuclear Cell Leukemia	1 2.0	0 0.0	0 0.0	0 0.0
Epidermal Inclusion Cyst	0 0.0	1 33.0	0 0.0	0 0.0
Hemorrhage, Muscle	1 2.0	0 0.0	0 0.0	0 0.0
Abscess	1 2.0	0 0.0	0 0.0	1 4.0
Ulceration	0 0.0	2 67.0	0 0.0	0 0.0
Inflammation, Chronic/Active	0 0.0	2 67.0	0 0.0	0 0.0
Hemorrhage	0 0.0	2 67.0	0 0.0	0 0.0
CLITORAL GLAND	# EX 44	6	5	27
Adenocarcinoma	3 7.0	3 50.0	1 20.0	0 0.0
Adenoma	1 2.0	2 33.0	3 60.0	1 4.0
Squamous Cell Papilloma	0 0.0	1 17.0	0 0.0	0 0.0
Fibrosis	1 2.0	0 0.0	0 0.0	0 0.0
Hyperplasia, Epithelial	5 11.0	0 0.0	0 0.0	0 0.0
Degeneration, Acinar	27 61.0	0 0.0	1 20.0	24 89.0
Inflammation, Chronic/Active	5 11.0	0 0.0	0 0.0	2 7.0
Inflammation, Suppurative	8 18.0	1 17.0	0 0.0	5 19.0
Mineralization, NOS	0 0.0	0 0.0	0 0.0	1 4.0
Lymphocytic Infiltrates	21 48.0	0 0.0	0 0.0	17 63.0
Dilatation, Ductal	1 2.0	0 0.0	1 20.0	0 0.0
Abscess	1 2.0	0 0.0	0 0.0	0 0.0
Inflammation, Chronic	0 0.0	0 0.0	1 20.0	0 0.0
EYES	# EX 44	1	0	26
Cataract	35 80.0	1 100.0	0 0.0	18 69.0
Mineralization, NOS, Cornea	30 68.0	1 100.0	0 0.0	13 50.0
Inflammation, Chronic, Cornea	1 2.0	0 0.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
EYES	# EX 44	1	0	26
Inflammation, Chronic/Active, Iris	9 20.0	0 0.0	0 0.0	0 0.0
HARDERIAN GLAND	# EX 44	0	0	27
Degeneration, Acinar	17 39.0	0 0.0	0 0.0	16 59.0
Lymphocytic Infiltrates	18 41.0	0 0.0	0 0.0	17 63.0
Inflammation, Chronic	0 0.0	0 0.0	0 0.0	2 7.0
Inflammation, Chronic/Active	0 0.0	0 0.0	0 0.0	1 4.0
NASAL	# EX 44	0	0	26
Squamous Cell Papilloma	1 2.0	0 0.0	0 0.0	0 0.0
Inflammation, Chronic/Active	12 27.0	0 0.0	0 0.0	7 27.0
Inflammation, Suppurative	24 55.0	0 0.0	0 0.0	12 46.0
FEMUR/BONE MARROW	# EX 44	0	0	26
Hyperplasia, Erythroid Cell	8 18.0	0 0.0	0 0.0	1 4.0
Hyperplasia, Megakaryocytic	0 0.0	0 0.0	0 0.0	1 4.0
Hyperplasia, Myeloid	5 11.0	0 0.0	0 0.0	2 8.0
Atrophy, NOS, bone marrow	0 0.0	0 0.0	0 0.0	2 8.0
PERIPANCREATIC TISSUE	# EX 0	2	1	2
Histiocytic Sarcoma, Lymph Node	0 0.0	1 50.0	0 0.0	0 0.0
Mononuclear Cell Leukemia	0 0.0	0 0.0	0 0.0	1 50.0
Mineralization, NOS, Fat	0 0.0	0 0.0	1 100.0	0 0.0
Necrosis, NOS, Fat	0 0.0	0 0.0	1 100.0	0 0.0
Inflammation, Chronic, Lymph Node	0 0.0	0 0.0	0 0.0	1 50.0
Congestion, Lymph Node	0 0.0	1 50.0	0 0.0	1 50.0
Hemorrhage, Lymph Node	0 0.0	1 50.0	0 0.0	0 0.0
Necrosis, Lymph Node	0 0.0	1 50.0	0 0.0	0 0.0
Pigmentation, NOS	0 0.0	1 50.0	0 0.0	1 50.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# %	# %	# %	# %
MESENTERY	# EX 2	0	0	1
Fibroadenoma	1 50.0	0 0.0	0 0.0	0 0.0
Cyst, NOS	0 0.0	0 0.0	0 0.0	1 100.0
Inflammation, Chronic	1 50.0	0 0.0	0 0.0	1 100.0
Inflammation, Chronic/Active	1 50.0	0 0.0	0 0.0	0 0.0
Mineralization, NOS	1 50.0	0 0.0	0 0.0	1 100.0
Necrosis, Fat	1 50.0	0 0.0	0 0.0	1 100.0
Hemorrhage	1 50.0	0 0.0	0 0.0	0 0.0
Lymphocytic Infiltrates	1 50.0	0 0.0	0 0.0	0 0.0
VAGINA	# EX 0	0	0	1
Hypertrophy, Epithelial	0 0.0	0 0.0	0 0.0	1 100.0
CERVIX	# EX 1	0	0	0
Endometrial Stromal Polyp	1 100.0	0 0.0	0 0.0	0 0.0
ORAL CAVITY	# EX 1	0	0	0
Squamous Cell Papilloma	1 100.0	0 0.0	0 0.0	0 0.0
PELVIS/SPINE	# EX 0	1	0	0
Osteosarcoma	0 0.0	1 100.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	5		6		7		8	
NUMBER OF ANIMALS:	37		36		39		27	
	#	%	#	%	#	%	#	%
BRAIN	# EX	36	4		1		26	
Astrocytoma		0 0.0	1 25.0		0 0.0		1 4.0	
Necrosis		1 3.0	1 25.0		0 0.0		0 0.0	
Hemorrhage		1 3.0	3 75.0		1 100.0		0 0.0	
SCIATIC NERVE	# EX	36	0		0		26	
SPINAL CORD	# EX	36	0		0		26	
Hemorrhage		1 3.0	0 0.0		0 0.0		0 0.0	
Necrosis		1 3.0	0 0.0		0 0.0		0 0.0	
SALIVARY GLAND	# EX	36	1		0		26	
Fibrosarcoma		0 0.0	1 100.0		0 0.0		1 4.0	
Degeneration, Acinar		1 3.0	0 0.0		0 0.0		0 0.0	
PANCREAS	# EX	35	3		1		26	
Acinar Cell Carcinoma		0 0.0	1 33.0		0 0.0		0 0.0	
Islet Cell Adenoma		1 3.0	0 0.0		1 100.0		1 4.0	
Hyperplasia, Islet Cell		0 0.0	0 0.0		0 0.0		2 8.0	
Hyperplasia, Acinar		1 3.0	0 0.0		0 0.0		0 0.0	
Degeneration, Acinar		12 34.0	0 0.0		0 0.0		8 31.0	
Inflammation, Chronic		5 14.0	0 0.0		0 0.0		3 12.0	
Polyarteritis		0 0.0	1 33.0		0 0.0		0 0.0	
Congestion		0 0.0	0 0.0		1 100.0		0 0.0	
Hemorrhage		1 3.0	0 0.0		0 0.0		0 0.0	
MANDIBULAR LYMPH NODE	# EX	36	1		2		25	
Plasmacytosis		34 94.0	1 100.0		2 100.0		21 84.0	
Hyperplasia, Lymphocytic		0 0.0	0 0.0		0 0.0		1 4.0	
Inflammation, Chronic		1 3.0	0 0.0		0 0.0		0 0.0	
Inflammation, Suppurative		0 0.0	0 0.0		0 0.0		1 4.0	
Hemorrhage		10 28.0	1 100.0		1 50.0		3 12.0	

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	5		6		7		8	
NUMBER OF ANIMALS:	37		36		39		27	
	#	%	#	%	#	%	#	%
MANDIBULAR LYMPH NODE	# EX 36		1		2		25	
Mineralization, NOS	2	6.0	0	0.0	0	0.0	0	0.0
Necrosis	0	0.0	0	0.0	0	0.0	1	4.0
ZYMBAL'S GLAND	# EX 36		0		1		26	
Sebaceous Cell Adenocarcinoma	0	0.0	0	0.0	1	100.0	0	0.0
Sebaceous Cell Adenoma	0	0.0	0	0.0	0	0.0	1	4.0
PITUITARY	# EX 35		15		13		25	
Carcinoma, Pars Distalis	3	9.0	3	20.0	5	38.0	2	8.0
Adenoma, Pars Distalis	7	20.0	10	67.0	8	62.0	4	16.0
Cyst, NOS, Pars Distalis	3	9.0	0	0.0	0	0.0	3	12.0
Hyperplasia, NOS, Pars Distalis	7	20.0	1	7.0	0	0.0	5	20.0
Hematocyst	0	0.0	0	0.0	0	0.0	1	4.0
Hematocyst, Pars Distalis	0	0.0	1	7.0	0	0.0	0	0.0
ADRENALS	# EX 36		2		3		27	
Pheochromocytoma, Malignant	0	0.0	0	0.0	0	0.0	1	4.0
Pheochromocytoma	1	3.0	1	50.0	0	0.0	4	15.0
Hyperplasia, NOS, Cortical	2	6.0	0	0.0	0	0.0	0	0.0
Hyperplasia, NOS, Medulla	3	8.0	0	0.0	0	0.0	3	11.0
Accessory Cortical Nodule	1	3.0	0	0.0	0	0.0	0	0.0
Vacuolization, Cytoplasmic, Cortical	3	8.0	1	50.0	3	100.0	1	4.0
Lymphocytic Infiltrates	0	0.0	0	0.0	2	67.0	1	4.0
Vacuolated Cell Focus	0	0.0	1	50.0	0	0.0	0	0.0
Degeneration, Cystic	0	0.0	0	0.0	0	0.0	1	4.0
THYROID	# EX 36		0		1		27	
Follicular Cell Carcinoma	0	0.0	0	0.0	0	0.0	1	4.0
C-Cell Carcinoma	1	3.0	0	0.0	1	100.0	0	0.0
Carcinoma, NOS	0	0.0	0	0.0	0	0.0	1	4.0
Follicular Cell Adenoma	0	0.0	0	0.0	0	0.0	1	4.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5		6		7		8	
NUMBER OF ANIMALS:		37		36		39		27	
<hr/>									
		#	%	#	%	#	%	#	%
THYROID	# EX	36		0		1		27	
C-Cell Adenoma		2	6.0	0	0.0	0	0.0	1	4.0
Hyperplasia, C-Cell		2	6.0	0	0.0	0	0.0	4	15.0
Cyst, Follicular		2	6.0	0	0.0	0	0.0	0	0.0
Mineralization, NOS		3	8.0	0	0.0	0	0.0	0	0.0
PARATHYROID	# EX	35		0		0		26	
Adenoma		1	3.0	0	0.0	0	0.0	0	0.0
TRACHEA	# EX	36		0		0		26	
ESOPHAGUS	# EX	36		0		0		26	
Hyperkeratosis		0	0.0	0	0.0	0	0.0	1	4.0
THYMUS	# EX	30		0		0		21	
Mononuclear Cell Leukemia		0	0.0	0	0.0	0	0.0	1	5.0
Cyst, NOS		1	3.0	0	0.0	0	0.0	0	0.0
Atrophy, NOS		30	100.0	0	0.0	0	0.0	21	100.0
Pigmentation, NOS		1	3.0	0	0.0	0	0.0	0	0.0
Hemorrhage		1	3.0	0	0.0	0	0.0	0	0.0
HEART	# EX	37		0		2		26	
Degeneration, Myocardial		36	97.0	0	0.0	0	0.0	24	92.0
Mineralization, NOS		37	100.0	0	0.0	0	0.0	25	96.0
Inflammation, Chronic		34	92.0	0	0.0	0	0.0	23	88.0
Inflammation, Suppurative		0	0.0	0	0.0	0	0.0	1	4.0
Thrombus		0	0.0	0	0.0	2	100.0	0	0.0
AORTA	# EX	36		0		0		26	
Mineralization, NOS		25	69.0	0	0.0	0	0.0	20	77.0
Inflammation, Chronic		1	3.0	0	0.0	0	0.0	0	0.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	5		6		7		8	
NUMBER OF ANIMALS:	37		36		39		27	
	#	%	#	%	#	%	#	%
COLON	# EX 35		0		0		26	
JEJUNUM	# EX 35		0		0		26	
LIVER	# EX 37		36		35		26	
Hepatocellular Carcinoma	1	3.0	0	0.0	0	0.0	1	4.0
Hepatocellular Adenoma	0	0.0	1	3.0	0	0.0	0	0.0
Hyperplasia, Hepatocellular	0	0.0	1	3.0	0	0.0	0	0.0
Bile Duct Hyperplasia	37	100.0	36	100.0	34	97.0	25	96.0
Vacuolated Cell Focus	0	0.0	2	6.0	2	6.0	0	0.0
Eosinophilic Focus	11	30.0	11	31.0	4	11.0	5	19.0
Eosinophilic Focus, Multiple	5	14.0	7	19.0	10	29.0	5	19.0
Basophilic Focus	3	8.0	7	19.0	4	11.0	0	0.0
Basophilic Focus, Multiple	1	3.0	3	8.0	8	23.0	3	12.0
Altered Cell Focus	0	0.0	1	3.0	0	0.0	0	0.0
Hepatodiaphragmatic Nodule	0	0.0	1	3.0	0	0.0	0	0.0
Vacuolization, Hepatocellular	0	0.0	5	14.0	11	31.0	4	15.0
Necrosis, Hepatocellular	4	11.0	4	11.0	7	20.0	6	23.0
Hepatocytomegaly	0	0.0	0	0.0	1	3.0	1	4.0
Biliary Fibrosis	37	100.0	35	97.0	33	94.0	23	88.0
Inflammation, Chronic/Active	1	3.0	2	6.0	0	0.0	0	0.0
Inflammation, Chronic	24	65.0	14	39.0	12	34.0	12	46.0
Degeneration, Cystic	0	0.0	0	0.0	4	11.0	3	12.0
Lymphocytic Infiltrates	0	0.0	3	8.0	8	23.0	9	35.0
Mineralization, NOS	0	0.0	2	6.0	1	3.0	0	0.0
Congestion	0	0.0	0	0.0	1	3.0	0	0.0
Hemorrhage	0	0.0	1	3.0	1	3.0	1	4.0
SPLEEN	# EX 37		36		35		26	
Mononuclear Cell Leukemia	1	3.0	4	11.0	8	23.0	9	35.0
Fibrosis	4	11.0	4	11.0	6	17.0	7	27.0
Cyst, Capsular, Multiple	0	0.0	0	0.0	0	0.0	1	4.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5		6		7		8	
NUMBER OF ANIMALS:		37		36		39		27	
<hr/>									
		#	%	#	%	#	%	#	%
SPLEEN	# EX	37		36		35		26	
Hyperplasia, Lymphocytic		0	0.0	1	3.0	8	23.0	2	8.0
Hyperplasia, Erythroid Cell		25	68.0	9	25.0	9	26.0	8	31.0
Hyperplasia, Myeloid		1	3.0	0	0.0	3	9.0	1	4.0
Pigmentation, NOS		27	73.0	1	3.0	7	20.0	2	8.0
Necrosis		1	3.0	0	0.0	0	0.0	0	0.0
Inflammation, Suppurative		0	0.0	0	0.0	1	3.0	0	0.0
TONGUE	# EX	36		0		0		26	
Mineralization, NOS		31	86.0	0	0.0	0	0.0	23	88.0
SKELETAL MUSCLE	# EX	36		0		0		26	
Mineralization, NOS		0	0.0	0	0.0	0	0.0	1	4.0
LUNGS	# EX	37		35		34		25	
Alveolar/Bronchiolar Carcinoma		0	0.0	0	0.0	1	3.0	0	0.0
Alveolar/Bronchiolar Adenoma		0	0.0	1	3.0	0	0.0	0	0.0
Alveolar/Bronchiolar Hyperplasia		1	3.0	2	6.0	0	0.0	0	0.0
Bronchiolar Epithelial Hyperplasia		0	0.0	0	0.0	2	6.0	5	20.0
Inflammation, Chronic		4	11.0	8	23.0	2	6.0	2	8.0
Inflammation, Chronic/Active		13	35.0	6	17.0	4	12.0	9	36.0
Lymphocytic Infiltrates		2	5.0	4	11.0	7	21.0	5	20.0
Mineralization, NOS		16	43.0	13	37.0	23	68.0	10	40.0
Hemorrhage		0	0.0	2	6.0	1	3.0	0	0.0
Foreign Body, NOS		1	3.0	0	0.0	0	0.0	0	0.0
Inflammation, Suppurative		0	0.0	0	0.0	1	3.0	0	0.0
KIDNEY	# EX	36		36		35		26	
Lipoma		0	0.0	1	3.0	0	0.0	0	0.0
Hyperplasia, Epithelial, Tubular		0	0.0	2	6.0	0	0.0	0	0.0
Chronic Progressive Nephropathy		36	100.0	36	100.0	35	100.0	25	96.0
Cytoplasmic Droplets		36	100.0	27	75.0	7	20.0	2	8.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
	# %	# %	# %	# %
KIDNEY	# EX 36	36	35	26
Lymphocytic Infiltrates	0 0.0	0 0.0	1 3.0	0 0.0
Vacuolization, Cytoplasmic	0 0.0	0 0.0	1 3.0	0 0.0
Cyst, NOS	0 0.0	1 3.0	0 0.0	0 0.0
Mineralization, NOS, Medulla	32 89.0	28 78.0	23 66.0	15 58.0
Pigmentation, NOS	36 100.0	29 81.0	12 34.0	10 38.0
Dilatation, Tubular	1 3.0	0 0.0	0 0.0	0 0.0
Inflammation, Suppurative	0 0.0	1 3.0	2 6.0	3 12.0
URINARY BLADDER	# EX 36	0	0	26
Hyperplasia, Epithelial	1 3.0	0 0.0	0 0.0	1 4.0
Urolith	0 0.0	0 0.0	0 0.0	1 4.0
Hemorrhage	1 3.0	0 0.0	0 0.0	0 0.0
Dilatation	0 0.0	0 0.0	0 0.0	1 4.0
Inflammation, Suppurative	0 0.0	0 0.0	0 0.0	1 4.0
STOMACH	# EX 34	1	0	26
Hyperkeratosis, Forestomach	0 0.0	1 100.0	0 0.0	1 4.0
Hyperplasia, Epithelial, Forestomach	1 3.0	0 0.0	0 0.0	0 0.0
Ulceration, Forestomach	0 0.0	1 100.0	0 0.0	0 0.0
Inflammation, Chronic/Active, Forestomach	0 0.0	1 100.0	0 0.0	0 0.0
Inflammation, Chronic/Active, Glandular	0 0.0	1 100.0	0 0.0	0 0.0
Pigmentation, NOS, Glandular	0 0.0	0 0.0	0 0.0	2 8.0
Necrosis, Glandular	0 0.0	1 100.0	0 0.0	0 0.0
Hemorrhage, Glandular	0 0.0	1 100.0	0 0.0	0 0.0
DUODENUM	# EX 34	0	0	26
ILEUM	# EX 35	0	0	26
CECUM	# EX 35	0	0	26
Mineralization, NOS	1 3.0	0 0.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5	6	7	8
NUMBER OF ANIMALS:		37	36	39	27
		# %	# %	# %	# %
CECUM	# EX	35	0	0	26
Degeneration, Mucosal		1 3.0	0 0.0	0 0.0	0 0.0
RECTUM	# EX	35	0	0	26
MESENTERIC LYMPH NODE	# EX	35	0	0	26
Mononuclear Cell Leukemia		0 0.0	0 0.0	0 0.0	1 4.0
Plasmacytosis		1 3.0	0 0.0	0 0.0	0 0.0
Inflammation, Chronic		33 94.0	0 0.0	0 0.0	23 88.0
TESTES	# EX	37	33	31	27
Interstitial Cell Adenoma		0 0.0	0 0.0	0 0.0	2 7.0
Interstitial Cell Adenoma, Multiple		34 92.0	31 94.0	29 94.0	21 78.0
Mesothelioma		1 3.0	0 0.0	2 6.0	0 0.0
Hyperplasia, Interstitial Cell		0 0.0	1 3.0	1 3.0	3 11.0
Degeneration, Seminiferous Tubule		36 97.0	32 97.0	30 97.0	24 89.0
Cyst, NOS, Multiple		1 3.0	0 0.0	0 0.0	0 0.0
Lymphocytic Infiltrates		0 0.0	0 0.0	1 3.0	0 0.0
Hemorrhage		0 0.0	0 0.0	1 3.0	0 0.0
EPIDIDYMIDES	# EX	36	0	0	26
Hypospermia		35 97.0	0 0.0	0 0.0	21 81.0
MAMMARY GLAND	# EX	33	1	0	24
Fibroadenoma		0 0.0	0 0.0	0 0.0	2 8.0
Galactocele		2 6.0	1 100.0	0 0.0	0 0.0
Galactocele, Multiple		0 0.0	0 0.0	0 0.0	1 4.0
Dilatation, Alveolar/Ductal		9 27.0	0 0.0	0 0.0	9 38.0
Inflammation, Suppurative		0 0.0	0 0.0	0 0.0	1 4.0
Pigmentation, NOS		1 3.0	0 0.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
	# %	# %	# %	# %
SKIN	# EX 36	3	9	26
Sebacous Cell Carcinoma	0 0.0	0 0.0	1 11.0	0 0.0
Squamous Cell Carcinoma	1 3.0	0 0.0	0 0.0	0 0.0
Sarcoma, NOS	1 3.0	0 0.0	0 0.0	0 0.0
Lipoma	1 3.0	0 0.0	1 11.0	0 0.0
Fibroma	1 3.0	0 0.0	0 0.0	3 12.0
Keratoacanthoma	1 3.0	0 0.0	1 11.0	1 4.0
Neural Crest Neoplasm (Ear)	1 3.0	0 0.0	0 0.0	0 0.0
Epidermal Inclusion Cyst	2 6.0	0 0.0	1 11.0	0 0.0
Plasmacytosis, Lymph Node	0 0.0	0 0.0	0 0.0	1 4.0
Ulceration	3 8.0	3 100.0	5 56.0	2 8.0
Inflammation, Chronic/Active	2 6.0	3 100.0	5 56.0	2 8.0
Inflammation, Chronic/Active, Fat	1 3.0	0 0.0	0 0.0	0 0.0
Inflammation, Suppurative	1 3.0	0 0.0	0 0.0	0 0.0
Hematocyst	0 0.0	0 0.0	0 0.0	1 4.0
PREPUTIAL GLAND	# EX 35	2	2	26
Squamous Cell Carcinoma	0 0.0	1 50.0	0 0.0	0 0.0
Adenocarcinoma	0 0.0	0 0.0	2 100.0	0 0.0
Adenoma	0 0.0	0 0.0	0 0.0	1 4.0
Hyperkeratosis	1 3.0	0 0.0	0 0.0	0 0.0
Degeneration, Acinar	31 89.0	1 50.0	0 0.0	24 92.0
Necrosis	0 0.0	0 0.0	0 0.0	1 4.0
Hyperplasia, Squamous Cell	1 3.0	0 0.0	0 0.0	0 0.0
Hyperplasia, Epithelial	2 6.0	1 50.0	0 0.0	0 0.0
Inflammation, Chronic/Active	5 14.0	0 0.0	0 0.0	2' 8.0
Inflammation, Suppurative	10 29.0	1 50.0	1 50.0	5 19.0
Lymphocytic Infiltrates	11 31.0	0 0.0	0 0.0	12 46.0
Dilatation, Ductal	1 3.0	0 0.0	0 0.0	0 0.0
Inflammation, Chronic	9 26.0	0 0.0	0 0.0	3 12.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
	# %	# %	# %	# %
EYES	# EX 35	0	1	26
Cataract	27 77.0	0 0.0	1 100.0	13 50.0
Mineralization, NOS, Cornea	20 57.0	0 0.0	0 0.0	15 58.0
HARDERIAN GLAND	# EX 35	0	0	26
Degeneration, Acinar	0 0.0	0 0.0	0 0.0	1 4.0
Lymphocytic Infiltrates	3 9.0	0 0.0	0 0.0	2 8.0
Inflammation, Chronic	2 6.0	0 0.0	0 0.0	0 0.0
NASAL	# EX 36	0	0	26
Hyperplasia, Glandular	1 3.0	0 0.0	0 0.0	0 0.0
Hyperplasia, Epithelial	4 11.0	0 0.0	0 0.0	2 8.0
Hyperkeratosis	1 3.0	0 0.0	0 0.0	0 0.0
Fibrosis	1 3.0	0 0.0	0 0.0	0 0.0
Inflammation, Chronic/Active	1 3.0	0 0.0	0 0.0	0 0.0
Inflammation, Suppurative	14 39.0	0 0.0	0 0.0	13 50.0
FEMUR/BONE MARROW	# EX 35	0	0	26
Mononuclear Cell Leukemia	0 0.0	0 0.0	0 0.0	1 4.0
Hyperplasia, Erythroid Cell	1 3.0	0 0.0	0 0.0	1 4.0
Hyperplasia, Megakaryocytic	0 0.0	0 0.0	0 0.0	1 4.0
Hyperplasia, Myeloid	1 3.0	0 0.0	0 0.0	3 12.0
PERIPANCREATIC TISSUE	# EX 0	0	0	1
Necrosis, NOS, Fat	0 0.0	0 0.0	0 0.0	1 100.0
Inflammation, Chronic, Fat	0 0.0	0 0.0	0 0.0	1 100.0
MESENTERY	# EX 3	1	1	0
Lipoma	0 0.0	1 100.0	0 0.0	0 0.0
Mesothelioma	2 67.0	0 0.0	0 0.0	0 0.0
Inflammation, Chronic, Fat	0 0.0	0 0.0	1 100.0	0 0.0
Inflammation, Chronic/Active, Fat	1 33.0	1 100.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5		6		7		8
NUMBER OF ANIMALS:		37		36		39		27
<hr/>								
		#	%	#	%	#	%	#
MESENTERY	# EX	3		1		1		0
Necrosis, Fat		1	33.0	0	0.0	1	100.0	0
								0.0
SEMINAL VESICLES	# EX	35		1		0		26
Atrophy, NOS		33	94.0	1	100.0	0	0.0	23
Dilatation, Lumen		0	0.0	0	0.0	0	0.0	1
								4.0
ABDOMINAL CAVITY	# EX	3		0		2		4
Mesothelioma		1	33.0	0	0.0	2	100.0	0
Hemangioma		0	0.0	0	0.0	0	0.0	1
Necrosis		0	0.0	0	0.0	0	0.0	1
Necrosis, Fat		2	67.0	0	0.0	0	0.0	3
Mineralization, NOS, Fat		2	67.0	0	0.0	0	0.0	2
Inflammation, Chronic		2	67.0	0	0.0	0	0.0	2
Inflammation, Chronic, Fat		0	0.0	0	0.0	0	0.0	1
Inflammation, Suppurative		0	0.0	0	0.0	0	0.0	1
								25.0
PROSTATE	# EX	35		0		0		26
Hyperplasia, Epithelial		17	49.0	0	0.0	0	0.0	18
Inflammation, Chronic		2	6.0	0	0.0	0	0.0	3
Inflammation, Chronic/Active		10	29.0	0	0.0	0	0.0	14
Inflammation, Suppurative		11	31.0	0	0.0	0	0.0	6
Mineralization, NOS		3	9.0	0	0.0	0	0.0	0
Degeneration, Acinar		5	14.0	0	0.0	0	0.0	10
								38.0

Incidence Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# SEV	# SEV	# SEV	# SEV
BRAIN	# EX 44	1	0	26
Hydrocephalus	0 0.00	0 0.00	0 0.00	1 0.12
Necrosis	0 0.00	0 0.00	0 0.00	1 0.04
Hemorrhage	0 0.00	0 0.00	0 0.00	1 0.04
Astrocytosis	0 0.00	0 0.00	0 0.00	1 0.08
SCIATIC NERVE	# EX 44	0	0	26
SPINAL CORD	# EX 44	0	0	26
Hemorrhage	0 0.00	0 0.00	0 0.00	1 0.04
Necrosis	0 0.00	0 0.00	0 0.00	1 0.04
SALIVARY GLAND	# EX 44	0	0	27
Lymphocytic Infiltrates	1 0.05	0 0.00	0 0.00	1 0.04
Degeneration, Acinar	1 0.05	0 0.00	0 0.00	2 0.07
PANCREAS	# EX 44	0	0	27
Degeneration, Acinar	22 0.77	0 0.00	0 0.00	15 0.85
Vacuolization, Cytoplasmic	1 0.05	0 0.00	0 0.00	0 0.00
Inflammation, Chronic	10 0.34	0 0.00	0 0.00	8 0.44
Lymphocytic Infiltrates	4 0.14	0 0.00	0 0.00	1 0.11
MANDIBULAR LYMPH NODE	# EX 43	3	2	27
Plasmacytosis	30 1.28	2 1.67	1 1.50	18 1.44
Hyperplasia, Lymphocytic	2 0.09	0 0.00	0 0.00	2 0.19
Inflammation, Chronic	1 0.05	1 0.67	0 0.00	1 0.04
Inflammation, Suppurative	0 0.00	0 0.00	1 1.00	0 0.00
Pigmentation, NOS	10 0.30	0 0.00	0 0.00	10 0.59
Hemorrhage	8 0.28	2 1.67	2 1.50	6 0.48
ZYMBAL'S GLAND	# EX 43	0	1	26

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# SEV	# SEV	# SEV	# SEV
PITUITARY	# EX 44	18	21	27
Hyperplasia, NOS, Pars Distalis	10 0.52	2 0.33	2 0.33	9 0.89
ADRENALS	# EX 44	4	1	26
Hyperplasia, NOS, Cortical	0 0.00	1 0.75	0 0.00	2 0.19
Hyperplasia, NOS, Medulla	1 0.05	0 0.00	0 0.00	2 0.23
Vacuolization, Cytoplasmic, Cortical	4 0.25	1 1.00	0 0.00	8 0.73
Pigmentation, NOS	0 0.00	0 0.00	0 0.00	1 0.08
Lymphocytic Infiltrates	1 0.05	0 0.00	0 0.00	1 0.08
Atrophy, NOS	0 0.00	1 0.75	0 0.00	0 0.00
Degeneration, Cystic	0 0.00	0 0.00	1 4.00	0 0.00
Hemorrhage	0 0.00	0 0.00	0 0.00	1 0.08
THYROID	# EX 44	0	1	25
Hyperplasia, C-Cell	7 0.23	0 0.00	0 0.00	6 0.44
Degeneration, Follicular	1 0.02	0 0.00	0 0.00	0 0.00
Mineralization, NOS	0 0.00	0 0.00	0 0.00	1 0.04
PARATHYROID	# EX 42	0	0	24
TRACHEA	# EX 44	0	0	27
ESOPHAGUS	# EX 44	0	0	27
THYMUS	# EX 37	1	0	25
Necrosis	0 0.00	0 0.00	0 0.00	1 0.16
Atrophy, NOS	36 3.00	1 3.00	0 0.00	21 2.76
Pigmentation, NOS	0 0.00	0 0.00	0 0.00	1 0.12
Lymphocytic Infiltrates	0 0.00	0 0.00	0 0.00	1 0.12
HEART	# EX 44	1	0	27
Degeneration, Myocardial	36 1.27	1 3.00	0 0.00	23 1.30
Mineralization, NOS	43 1.45	1 2.00	0 0.00	27 1.59

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# SEV	# SEV	# SEV	# SEV
HEART	# EX 44	1	0	27
Lymphocytic Infiltrates	1 0.07	0 0.00	0 0.00	0 0.00
Inflammation, Chronic	39 1.20	1 2.00	0 0.00	18 0.89
Fibrosis	0 0.00	1 2.00	0 0.00	0 0.00
AORTA	# EX 44	0	0	27
Mineralization, NOS	8 0.20	0 0.00	0 0.00	6 0.22
Inflammation, Chronic	1 0.02	0 0.00	0 0.00	0 0.00
COLON	# EX 44	0	0	26
Lymphocytic Infiltrates	1 0.05	0 0.00	0 0.00	0 0.00
JEJUNUM	# EX 44	0	0	26
LIVER	# EX 44	39	43	27
Hyperplasia, Hepatocellular	0 0.00	2 0.13	0 0.00	0 0.00
Bile Duct Hyperplasia	32 1.18	28 1.26	28 1.30	15 0.89
Vacuolization, Hepatocellular	3 0.14	3 0.21	7 0.44	7 0.52
Necrosis, Hepatocellular	16 0.66	10 0.41	16 0.81	11 0.74
Hepatocytomegaly	0 0.00	1 0.05	6 0.40	3 0.26
Biliary Fibrosis	10 0.27	14 0.51	18 0.72	4 0.22
Pigmentation, NOS	0 0.00	0 0.00	1 0.07	1 0.04
Inflammation, Chronic/Active	0 0.00	2 0.05	2 0.12	0 0.00
Inflammation, Chronic	43 1.84	25 1.08	26 1.12	21 1.44
Degeneration, Cystic	0 0.00	2 0.15	0 0.00	0 0.00
Lymphocytic Infiltrates	4 0.27	8 0.69	12 0.86	7 0.89
Extramedullary Hematopoiesis	1 0.05	0 0.00	0 0.00	0 0.00
Mineralization, NOS	0 0.00	0 0.00	1 0.07	1 0.11
Karyomegaly	0 0.00	0 0.00	1 0.07	0 0.00
Congestion	2 0.09	0 0.00	0 0.00	0 0.00
Mitotic Alteration	1 0.07	0 0.00	0 0.00	0 0.00

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# SEV	# SEV	# SEV	# SEV
SPLEEN	# EX 44	39	44	27
Fibrosis	2 0.07	7 0.31	4 0.14	3 0.19
Hyperplasia, Lymphocytic	1 0.07	3 0.18	0 0.00	0 0.00
Hyperplasia, Erythroid Cell	41 2.27	23 1.13	19 0.80	15 0.81
Hyperplasia, Myeloid	1 0.09	3 0.23	3 0.23	2 0.11
Pigmentation, NOS	41 2.82	27 1.33	20 0.64	18 1.19
Inflammation, Chronic	1 0.05	0 0.00	0 0.00	0 0.00
TONGUE	# EX 44	0	0	27
Mineralization, NOS	40 1.18	0 0.00	0 0.00	25 1.15
Hemorrhage	0 0.00	0 0.00	0 0.00	1 0.07
Inflammation, Chronic	1 0.02	0 0.00	0 0.00	1 0.04
Inflammation, Chronic/Active	1 0.07	0 0.00	0 0.00	0 0.00
SKELETAL MUSCLE	# EX 44	0	0	27
Mineralization, NOS	0 0.00	0 0.00	0 0.00	1 0.04
LUNGS	# EX 44	39	43	26
Alveolar/Bronchiolar Hyperplasia	0 0.00	0 0.00	1 0.05	1 0.12
Inflammation, Chronic	14 0.34	12 0.44	8 0.28	8 0.38
Inflammation, Chronic/Active	0 0.00	0 0.00	1 0.05	3 0.27
Lymphocytic Infiltrates	4 0.23	7 0.56	12 0.93	8 0.85
Mineralization, NOS	22 0.55	10 0.33	19 0.60	12 0.58
Pigmentation, NOS	1 0.02	0 0.00	0 0.00	0 0.00
Hemorrhage	0 0.00	0 0.00	0 0.00	1 0.15
Congestion	0 0.00	1 0.05	0 0.00	1 0.15
KIDNEY	# EX 44	39	43	26
Chronic Progressive Nephropathy	44 1.98	38 1.90	42 2.00	25 1.73
Cytoplasmic Droplets	44 3.05	39 2.44	12 0.60	12 0.69
Lymphocytic Infiltrates	2 0.14	1 0.10	2 0.14	2 0.19
Vacuolization, Cytoplasmic	0 0.00	1 0.08	4 0.28	0 0.00
Mineralization, NOS, Medulla	44 2.23	39 1.69	43 1.84	26 1.88

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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SEVERITY SUMMARY  
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STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# SEV	# SEV	# SEV	# SEV
KIDNEY	# EX 44	39	43	26
Pigmentation, NOS	44 2.89	39 1.87	21 0.84	25 1.62
Dilatation, Pelvis	0 0.00	0 0.00	0 0.00	1 0.12
URINARY BLADDER	# EX 44	1	0	27
Hyperplasia, Epithelial	1 0.05	0 0.00	0 0.00	0 0.00
Lymphocytic Infiltrates	0 0.00	0 0.00	0 0.00	2 0.11
STOMACH	# EX 44	0	1	26
Hyperkeratosis, Forestomach	0 0.00	0 0.00	0 0.00	1 0.08
Hyperplasia, Epithelial, Forestomach	2 0.09	0 0.00	0 0.00	0 0.00
Pigmentation, NOS, Glandular	0 0.00	0 0.00	0 0.00	1 0.12
Degeneration, Cystic, Glandular	0 0.00	0 0.00	0 0.00	1 0.08
Necrosis, Glandular	0 0.00	0 0.00	0 0.00	1 0.08
DUODENUM	# EX 44	0	0	26
Lymphocytic Infiltrates	1 0.05	0 0.00	0 0.00	0 0.00
ILEUM	# EX 44	0	0	26
Lymphocytic Infiltrates	1 0.05	0 0.00	0 0.00	0 0.00
CECUM	# EX 44	0	0	26
Lymphocytic Infiltrates	1 0.05	0 0.00	0 0.00	0 0.00
RECTUM	# EX 44	0	0	26
MESENTERIC LYMPH NODE	# EX 44	2	1	26
Plasmacytosis	0 0.00	0 0.00	0 0.00	3 0.19
Hyperplasia, Lymphocytic	0 0.00	0 0.00	0 0.00	2 0.15
Inflammation, Chronic	37 1.11	0 0.00	0 0.00	23 1.38
Necrosis	0 0.00	0 0.00	0 0.00	1 0.08
Pigmentation, NOS	31 0.84	0 0.00	0 0.00	18 0.73
Hemorrhage	2 0.07	0 0.00	1 2.00	4 0.19

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Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# SEV	# SEV	# SEV	# SEV
MESENTERIC LYMPH NODE	# EX 44	2	1	26
Dilatation, Medulla	0 0.00	1 2.00	0 0.00	0 0.00
OVARIES	# EX 43	5	3	26
Hyperplasia, Epithelial Cell	0 0.00	0 0.00	1 1.00	0 0.00
Hyperplasia, Interstitial Cell	2 0.12	0 0.00	0 0.00	2 0.15
Lymphocytic Infiltrates	0 0.00	0 0.00	0 0.00	1 0.12
Pigmentation, NOS	1 0.02	0 0.00	0 0.00	2 0.12
UTERUS	# EX 44	6	10	25
Endometrial Glandular Hyperplasia	1 0.05	0 0.00	1 0.20	0 0.00
Cystic Endometrial Glandular Hyperplasia	3 0.23	0 0.00	0 0.00	4 0.40
Cystic Endometrial Glands	1 0.05	0 0.00	1 0.30	1 0.12
Inflammation, Chronic/Active	0 0.00	0 0.00	1 0.40	0 0.00
Inflammation, Suppurative	0 0.00	0 0.00	0 0.00	1 0.08
Dilatation, Lumen	13 0.75	0 0.00	1 0.40	6 0.72
Lymphocytic Infiltrates	1 0.05	0 0.00	0 0.00	2 0.20
Necrosis	0 0.00	0 0.00	1 0.40	0 0.00
Fibrosis, Stromal	0 0.00	0 0.00	1 0.40	0 0.00
Hemorrhage	0 0.00	1 0.67	1 0.30	0 0.00
MAMMARY GLAND	# EX 44	9	12	26
Dilatation, Alveolar/Ductal	18 0.89	0 0.00	0 0.00	15 1.58
Hyperplasia, Epithelial	1 0.05	0 0.00	0 0.00	0 0.00
Necrosis	0 0.00	1 0.33	0 0.00	1 0.08
Inflammation, Chronic/Active	0 0.00	0 0.00	0 0.00	1 0.04
Inflammation, Suppurative	0 0.00	1 0.44	0 0.00	0 0.00
Lymphocytic Infiltrates	0 0.00	0 0.00	0 0.00	1 0.04
SKIN	# EX 44	3	1	26
Hemorrhage, Muscle	1 0.09	0 0.00	0 0.00	0 0.00
Abscess	1 0.09	0 0.00	0 0.00	0 0.00
Ulceration	0 0.00	2 2.67	0 0.00	0 0.00

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# SEV	# SEV	# SEV	# SEV
SKIN	# EX 44	3	1	26
Inflammation, Chronic/Active	0 0.00	2 2.67	0 0.00	0 0.00
Hemorrhage	0 0.00	2 2.00	0 0.00	0 0.00
CLITORAL GLAND	# EX 44	6	5	27
Fibrosis	1 0.05	0 0.00	0 0.00	0 0.00
Hyperplasia, Epithelial	5 0.20	0 0.00	0 0.00	0 0.00
Degeneration, Acinar	27 1.16	0 0.00	1 0.60	24 1.41
Inflammation, Chronic/Active	5 0.14	0 0.00	0 0.00	2 0.11
Inflammation, Suppurative	8 0.52	1 0.67	0 0.00	5 0.41
Mineralization, NOS	0 0.00	0 0.00	0 0.00	1 0.04
Lymphocytic Infiltrates	21 0.64	0 0.00	0 0.00	17 0.78
Dilatation, Ductal	1 0.09	0 0.00	1 0.80	0 0.00
Abscess	1 0.07	0 0.00	0 0.00	0 0.00
Inflammation, Chronic	0 0.00	0 0.00	1 0.40	0 0.00
EYES	# EX 44	1	0	26
Mineralization, NOS, Cornea	30 1.00	1 2.00	0 0.00	13 0.85
Inflammation, Chronic, Cornea	1 0.05	0 0.00	0 0.00	0 0.00
Inflammation, Chronic/Active, Iris	9 0.32	0 0.00	0 0.00	0 0.00
HARDERIAN GLAND	# EX 44	0	0	27
Degeneration, Acinar	17 0.50	0 0.00	0 0.00	16 0.70
Lymphocytic Infiltrates	18 0.45	0 0.00	0 0.00	17 0.74
Inflammation, Chronic	0 0.00	0 0.00	0 0.00	2 0.11
Inflammation, Chronic/Active	0 0.00	0 0.00	0 0.00	1 0.07
NASAL	# EX 44	0	0	26
Inflammation, Chronic/Active	12 0.41	0 0.00	0 0.00	7 0.46
Inflammation, Suppurative	24 1.05	0 0.00	0 0.00	12 1.08
FEMUR/BONE MARROW	# EX 44	0	0	26
Hyperplasia, Erythroid Cell	8 0.32	0 0.00	0 0.00	1 0.08

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	44	40	44	28
	# SEV	# SEV	# SEV	# SEV
FEMUR/BONE MARROW	# EX 44	0	0	26
Hyperplasia, Megakaryocytic	0 0.00	0 0.00	0 0.00	1 0.08
Hyperplasia, Myeloid	5 0.27	0 0.00	0 0.00	2 0.15
Atrophy, NOS, bone marrow	0 0.00	0 0.00	0 0.00	2 0.19
PERIPANCREATIC TISSUE	# EX 0	2	1	2
Mineralization, NOS, Fat	0 0.00	0 0.00	1 4.00	0 0.00
Necrosis, NOS, Fat	0 0.00	0 0.00	1 4.00	0 0.00
Inflammation, Chronic, Lymph Node	0 0.00	0 0.00	0 0.00	1 1.50
Congestion, Lymph Node	0 0.00	1 1.00	0 0.00	1 1.00
Hemorrhage, Lymph Node	0 0.00	1 2.00	0 0.00	0 0.00
Necrosis, Lymph Node	0 0.00	1 2.00	0 0.00	0 0.00
Pigmentation, NOS	0 0.00	1 1.00	0 0.00	1 1.00
MESENTERY	# EX 2	0	0	1
Inflammation, Chronic	1 1.50	0 0.00	0 0.00	1 2.00
Inflammation, Chronic/Active	1 2.00	0 0.00	0 0.00	0 0.00
Mineralization, NOS	1 2.00	0 0.00	0 0.00	1 2.00
Necrosis, Fat	1 2.00	0 0.00	0 0.00	1 3.00
Hemorrhage	1 1.00	0 0.00	0 0.00	0 0.00
Lymphocytic Infiltrates	1 2.00	0 0.00	0 0.00	0 0.00
VAGINA	# EX 0	0	0	1
Hypertrophy, Epithelial	0 0.00	0 0.00	0 0.00	1 3.00
CERVIX	# EX 1	0	0	0
ORAL CAVITY	# EX 1	0	0	0
PELVIS/SPINE	# EX 0	1	0	0

Severity Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
	# SEV	# SEV	# SEV	# SEV
BRAIN	# EX 36	4	1	26
Necrosis	1 0.11	1 1.00	0 0.00	0 0.00
Hemorrhage	1 0.11	3 2.75	1 4.00	0 0.00
SCIATIC NERVE	# EX 36	0	0	26
SPINAL CORD	# EX 36	0	0	26
Hemorrhage	1 0.08	0 0.00	0 0.00	0 0.00
Necrosis	1 0.06	0 0.00	0 0.00	0 0.00
SALIVARY GLAND	# EX 36	1	0	26
Degeneration, Acinar	1 0.03	0 0.00	0 0.00	0 0.00
PANCREAS	# EX 35	3	1	26
Hyperplasia, Islet Cell	0 0.00	0 0.00	0 0.00	2 0.15
Hyperplasia, Acinar	1 0.06	0 0.00	0 0.00	0 0.00
Degeneration, Acinar	12 0.46	0 0.00	0 0.00	8 0.50
Inflammation, Chronic	5 0.20	0 0.00	0 0.00	3 0.23
Polyarteritis	0 0.00	1 1.33	0 0.00	0 0.00
Congestion	0 0.00	0 0.00	1 2.00	0 0.00
Hemorrhage	1 0.03	0 0.00	0 0.00	0 0.00
MANDIBULAR LYMPH NODE	# EX 36	1	2	25
Plasmacytosis	34 2.44	1 2.00	2 3.00	21 2.24
Hyperplasia, Lymphocytic	0 0.00	0 0.00	0 0.00	1 0.12
Inflammation, Chronic	1 0.03	0 0.00	0 0.00	0 0.00
Inflammation, Suppurative	0 0.00	0 0.00	0 0.00	1 0.08
Hemorrhage	10 0.44	1 2.00	1 1.00	3 0.28
Mineralization, NOS	2 0.08	0 0.00	0 0.00	0 0.00
Necrosis	0 0.00	0 0.00	0 0.00	1 0.16
ZYMBAL'S GLAND	# EX 36	0	1	26

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
	# SEV	# SEV	# SEV	# SEV
PITUITARY	# EX 35	15	13	25
Hyperplasia, NOS, Pars Distalis	5 0.34	1 0.20	0 0.00	4 0.28
ADRENALS	# EX 36	2	3	27
Hyperplasia, NOS, Cortical	2 0.17	0 0.00	0 0.00	0 0.00
Hyperplasia, NOS, Medulla	3 0.17	0 0.00	0 0.00	3 0.30
Vacuolization, Cytoplasmic, Cortical	3 0.14	1 1.50	3 3.00	1 0.07
Lymphocytic Infiltrates	0 0.00	0 0.00	2 2.33	1 0.07
Degeneration, Cystic	0 0.00	0 0.00	0 0.00	1 0.07
THYROID	# EX 36	0	1	27
Hyperplasia, C-Cell	2 0.06	0 0.00	0 0.00	4 0.30
Mineralization, NOS	3 0.11	0 0.00	0 0.00	0 0.00
PARATHYROID	# EX 35	0	0	26
TRACHEA	# EX 36	0	0	26
ESOPHAGUS	# EX 36	0	0	26
Hyperkeratosis	0 0.00	0 0.00	0 0.00	1 0.12
THYMUS	# EX 30	0	0	21
Atrophy, NOS	30 3.83	0 0.00	0 0.00	21 3.95
Pigmentation, NOS	1 0.10	0 0.00	0 0.00	0 0.00
Hemorrhage	1 0.10	0 0.00	0 0.00	0 0.00
HEART	# EX 37	0	2	26
Degeneration, Myocardial	36 1.95	0 0.00	0 0.00	24 2.08
Mineralization, NOS	37 2.00	0 0.00	0 0.00	25 1.92
Inflammation, Chronic	34 1.49	0 0.00	0 0.00	23 1.42
Inflammation, Suppurative	0 0.00	0 0.00	0 0.00	1 0.08

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
	# SEV	# SEV	# SEV	# SEV
AORTA	# EX 36	0	0	26
Mineralization, NOS	25 0.94	0 0.00	0 0.00	20 0.81
Inflammation, Chronic	1 0.03	0 0.00	0 0.00	0 0.00
COLON	# EX 35	0	0	26
JEJUNUM	# EX 35	0	0	26
LIVER	# EX 37	36	35	26
Hyperplasia, Hepatocellular	0 0.00	1 0.11	0 0.00	0 0.00
Bile Duct Hyperplasia	37 2.62	36 2.47	34 2.43	25 2.46
Vacuolization, Hepatocellular	0 0.00	5 0.33	11 0.83	4 0.38
Necrosis, Hepatocellular	4 0.14	4 0.14	7 0.46	6 0.38
Hepatocytomegaly	0 0.00	0 0.00	1 0.09	1 0.08
Biliary Fibrosis	37 2.00	35 1.92	33 2.11	23 1.92
Inflammation, Chronic/Active	1 0.03	2 0.06	0 0.00	0 0.00
Inflammation, Chronic	24 1.03	14 0.72	12 0.60	12 0.54
Degeneration, Cystic	0 0.00	0 0.00	4 0.23	3 0.31
Lymphocytic Infiltrates	0 0.00	3 0.28	8 0.86	9 1.15
Mineralization, NOS	0 0.00	2 0.11	1 0.06	0 0.00
Congestion	0 0.00	0 0.00	1 0.09	0 0.00
Hemorrhage	0 0.00	1 0.08	1 0.11	1 0.15
SPLEEN	# EX 37	36	35	26
Fibrosis	4 0.11	4 0.14	6 0.40	7 0.50
Hyperplasia, Lymphocytic	0 0.00	1 0.06	8 0.54	2 0.15
Hyperplasia, Erythroid Cell	25 1.11	9 0.42	9 0.54	8 0.50
Hyperplasia, Myeloid	1 0.08	0 0.00	3 0.29	1 0.15
Pigmentation, NOS	27 1.54	1 0.06	7 0.40	2 0.15
Necrosis	1 0.11	0 0.00	0 0.00	0 0.00
Inflammation, Suppurative	0 0.00	0 0.00	1 0.06	0 0.00

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
	# SEV	# SEV	# SEV	# SEV
TONGUE	# EX 36	0	0	26
Mineralization, NOS	31 1.03	0 0.00	0 0.00	23 1.42
SKELETAL MUSCLE	# EX 36	0	0	26
Mineralization, NOS	0 0.00	0 0.00	0 0.00	1 0.08
LUNGS	# EX 37	35	34	25
Alveolar/Bronchiolar Hyperplasia	1 0.05	2 0.14	0 0.00	0 0.00
Bronchiolar Epithelial Hyperplasia	0 0.00	0 0.00	2 0.18	5 0.52
Inflammation, Chronic	4 0.14	8 0.31	2 0.12	2 0.08
Inflammation, Chronic/Active	13 1.00	6 0.49	4 0.35	9 1.08
Lymphocytic Infiltrates	2 0.11	4 0.31	7 0.74	5 0.64
Mineralization, NOS	16 0.68	13 0.54	23 1.12	10 0.56
Hemorrhage	0 0.00	2 0.14	1 0.06	0 0.00
Inflammation, Suppurative	0 0.00	0 0.00	1 0.06	0 0.00
KIDNEY	# EX 36	36	35	26
Hyperplasia, Epithelial, Tubular	0 0.00	2 0.11	0 0.00	0 0.00
Chronic Progressive Nephropathy	36 3.69	36 3.94	35 3.89	25 3.73
Cytoplasmic Droplets	36 2.44	27 1.58	7 0.34	2 0.12
Lymphocytic Infiltrates	0 0.00	0 0.00	1 0.11	0 0.00
Vacuolization, Cytoplasmic	0 0.00	0 0.00	1 0.09	0 0.00
Mineralization, NOS, Medulla	32 1.56	28 1.47	23 1.26	15 0.92
Pigmentation, NOS	36 2.50	29 1.50	12 0.77	10 0.92
Dilatation, Tubular	1 0.08	0 0.00	0 0.00	0 0.00
Inflammation, Suppurative	0 0.00	1 0.06	2 0.11	3 0.27
URINARY BLADDER	# EX 36	0	0	26
Hyperplasia, Epithelial	1 0.06	0 0.00	0 0.00	1 0.15
Hemorrhage	1 0.11	0 0.00	0 0.00	0 0.00
Dilatation	0 0.00	0 0.00	0 0.00	1 0.15
Inflammation, Suppurative	0 0.00	0 0.00	0 0.00	1 0.12

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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SEVERITY SUMMARY  
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STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
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	# SEV	# SEV	# SEV	# SEV
STOMACH	# EX 34	1	0	26
Hyperkeratosis, Forestomach	0 0.00	1 2.00	0 0.00	1 0.12
Hyperplasia, Epithelial, Forestomach	1 0.03	0 0.00	0 0.00	0 0.00
Ulceration, Forestomach	0 0.00	1 3.00	0 0.00	0 0.00
Inflammation, Chronic/Active, Forestomach	0 0.00	1 3.00	0 0.00	0 0.00
Inflammation, Chronic/Active, Glandular	0 0.00	1 3.00	0 0.00	0 0.00
Pigmentation, NOS, Glandular	0 0.00	0 0.00	0 0.00	2 0.31
Necrosis, Glandular	0 0.00	1 4.00	0 0.00	0 0.00
Hemorrhage, Glandular	0 0.00	1 3.00	0 0.00	0 0.00
DUODENUM	# EX 34	0	0	26
ILEUM	# EX 35	0	0	26
CECUM	# EX 35	0	0	26
Mineralization, NOS	1 0.06	0 0.00	0 0.00	0 0.00
Degeneration, Mucosal	1 0.09	0 0.00	0 0.00	0 0.00
RECTUM	# EX 35	0	0	26
MESENTERIC LYMPH NODE	# EX 35	0	0	26
Plasmacytosis	1 0.06	0 0.00	0 0.00	0 0.00
Inflammation, Chronic	33 1.40	0 0.00	0 0.00	23 1.31
TESTES	# EX 37	33	31	27
Hyperplasia, Interstitial Cell	0 0.00	1 0.06	1 0.06	3 0.26
Degeneration, Seminiferous Tubule	36 3.89	32 3.82	30 3.74	24 <sup>1</sup> 3.33
Lymphocytic Infiltrates	0 0.00	0 0.00	1 0.10	0 0.00
Hemorrhage	0 0.00	0 0.00	1 0.10	0 0.00
EPIDIDYMIDES	# EX 36	0	0	26
Hypospermia	35 3.89	0 0.00	0 0.00	21 3.23

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Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
	# SEV	# SEV	# SEV	# SEV
MAMMARY GLAND	# EX 33	1	0	24
Dilatation, Alveolar/Ductal	9 0.67	0 0.00	0 0.00	9 0.75
Inflammation, Suppurative	0 0.00	0 0.00	0 0.00	1 0.08
Pigmentation, NOS	1 0.06	0 0.00	0 0.00	0 0.00
SKIN	# EX 36	3	9	26
Plasmacytosis, Lymph Node	0 0.00	0 0.00	0 0.00	1 0.15
Ulceration	3 0.33	3 3.67	5 2.22	2 0.31
Inflammation, Chronic/Active	2 0.22	3 4.00	5 2.22	2 0.31
Inflammation, Chronic/Active, Fat	1 0.08	0 0.00	0 0.00	0 0.00
Inflammation, Suppurative	1 0.11	0 0.00	0 0.00	0 0.00
PREPUTIAL GLAND	# EX 35	2	2	26
Hyperkeratosis	1 0.11	0 0.00	0 0.00	0 0.00
Degeneration, Acinar	31 2.03	1 2.00	0 0.00	24 2.23
Necrosis	0 0.00	0 0.00	0 0.00	1 0.08
Hyperplasia, Squamous Cell	1 0.11	0 0.00	0 0.00	0 0.00
Hyperplasia, Epithelial	2 0.11	1 2.00	0 0.00	0 0.00
Inflammation, Chronic/Active	5 0.34	0 0.00	0 0.00	2 0.15
Inflammation, Suppurative	10 0.89	1 2.00	1 2.00	5 0.58
Lymphocytic Infiltrates	11 0.63	0 0.00	0 0.00	12 0.85
Dilatation, Ductal	1 0.11	0 0.00	0 0.00	0 0.00
Inflammation, Chronic	9 0.54	0 0.00	0 0.00	3 0.19
EYES	# EX 35	0	1	26
Mineralization, NOS, Cornea	20 0.66	0 0.00	0 0.00	15 0.69
HARDERIAN GLAND	# EX 35	0	0	26
Degeneration, Acinar	0 0.00	0 0.00	0 0.00	1 0.08
Lymphocytic Infiltrates	3 0.11	0 0.00	0 0.00	2 0.08
Inflammation, Chronic	2 0.09	0 0.00	0 0.00	0 0.00

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
	# SEV	# SEV	# SEV	# SEV
NASAL	# EX 36	0	0	26
Hyperplasia, Glandular	1 0.06	0 0.00	0 0.00	0 0.00
Hyperplasia, Epithelial	4 0.25	0 0.00	0 0.00	2 0.19
Hyperkeratosis	1 0.06	0 0.00	0 0.00	0 0.00
Fibrosis	1 0.08	0 0.00	0 0.00	0 0.00
Inflammation, Chronic/Active	1 0.06	0 0.00	0 0.00	0 0.00
Inflammation, Suppurative	14 1.33	0 0.00	0 0.00	13 1.38
FEMUR/BONE MARROW	# EX 35	0	0	26
Hyperplasia, Erythroid Cell	1 0.06	0 0.00	0 0.00	1 0.08
Hyperplasia, Megakaryocytic	0 0.00	0 0.00	0 0.00	1 0.12
Hyperplasia, Myeloid	1 0.06	0 0.00	0 0.00	3 0.23
PERIPANCREATIC TISSUE	# EX 0	0	0	1
Necrosis, NOS, Fat	0 0.00	0 0.00	0 0.00	1 2.00
Inflammation, Chronic, Fat	0 0.00	0 0.00	0 0.00	1 3.00
MESENTERY	# EX 3	1	1	0
Inflammation, Chronic, Fat	0 0.00	0 0.00	1 4.00	0 0.00
Inflammation, Chronic/Active, Fat	1 1.00	1 4.00	0 0.00	0 0.00
Necrosis, Fat	1 1.00	0 0.00	1 4.00	0 0.00
SEMINAL VESICLES	# EX 35	1	0	26
Atrophy, NOS	33 3.46	1 4.00	0 0.00	23 3.27
Dilatation, Lumen	0 0.00	0 0.00	0 0.00	1 0.12
ABDOMINAL CAVITY	# EX 3	0	2	4 <sup>1</sup>
Necrosis	0 0.00	0 0.00	0 0.00	1 1.00
Necrosis, Fat	2 2.33	0 0.00	0 0.00	3 3.00
Mineralization, NOS, Fat	2 2.33	0 0.00	0 0.00	2 2.00
Inflammation, Chronic	2 1.67	0 0.00	0 0.00	2 1.50
Inflammation, Chronic, Fat	0 0.00	0 0.00	0 0.00	1 0.75
Inflammation, Suppurative	0 0.00	0 0.00	0 0.00	1 1.00

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	37	36	39	27
PROSTATE	# SEV	# SEV	# SEV	# SEV
# EX 35	0	0	26	
Hyperplasia, Epithelial	17 0.69	0 0.00	0 0.00	18 1.15
Inflammation, Chronic	2 0.06	0 0.00	0 0.00	3 0.12
Inflammation, Chronic/Active	10 0.40	0 0.00	0 0.00	14 0.81
Inflammation, Suppurative	11 0.86	0 0.00	0 0.00	6 0.58
Mineralization, NOS	3 0.14	0 0.00	0 0.00	0 0.00
Degeneration, Acinar	5 0.26	0 0.00	0 0.00	10 0.65

Severity Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
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STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	27	28	29	30	31	32	33	34	35
BRAIN	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N
PANCREAS	N		N	N	N	N			
Degeneration, Acinar	-	1	-	-	-	-	2	1	1
Inflammation, Chronic	-	-	-	-	-	-	1	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	1
MANDIBULAR LYMPH NODE	N	N		U		N		N	
Plasmacytosis	-	-	2	-	1	-	1	-	1
Pigmentation, NOS	-	-	1	-	-	-	1	-	-
ZYMBAL'S GLAND	N	N	N		N	N	N	N	N
Sebaceous Cell Adenoma	-	-	-	P	-	-	-	-	-
PITUITARY				N	N			N	
Adenoma, Pars Distalis	P	P	P	-	-	-	-	-	P
Cyst, NOS, Pars Distalis	P	-	-	-	-	P	-	-	-
Hyperplasia, NOS, Pars Distalis	-	3	-	-	-	2	2	-	-
ADRENALS		N	N	N	N	N	N	N	
Hyperplasia, NOS, Medulla	2	-	-	-	-	-	-	-	-
Vacuolization, Cytoplasmic, Cortical	-	-	-	-	-	-	-	-	2
Lymphocytic Infiltrates	-	-	-	-	-	-	-	2	2
THYROID	N		N	N	N		N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study						STUDY NUMBER: 93-004			
FATE: ALL						GROUP: 1			
DAYS ON TEST: ALL						SEX: FEMALE			
ANIMAL ID:	27	28	29	30	31	32	33	34	35
THYROID	N		N	N	N		N	N	N
Hyperplasia, C-Cell	-	1	-	-	-	1	-	-	-
PARATHYROID	N	N	N	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS					U	U	U	U	
Atrophy, NOS	4	2	3	2	-	-	-	-	3
HEART									
Degeneration, Myocardial	1	1	1	2	2	1	-	2	1
Mineralization, NOS	2	1	1	2	2	1	1	2	1
Inflammation, Chronic	1	1	1	2	2	1	-	2	1
AORTA	N	N	N	N	N	N		N	N
Mineralization, NOS	-	-	-	-	-	-	1	-	-
Inflammation, Chronic	-	-	-	-	-	-	1	-	-
COLON	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N
LIVER									
Bile Duct Hyperplasia	2	1	2	1	2	1	2	2	-
Basophilic Focus, Multiple	-	P	P	-	P	P	-	-	P
Necrosis, Hepatocellular	2	-	-	-	-	-	2	3	1
Biliary Fibrosis	-	-	-	-	1	-	-	-	-
Inflammation, Chronic	2	1	2	2	2	1	3	3	-
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	3
Congestion	-	-	-	-	2	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	27	28	29	30	31	32	33	34	35
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	-	-	-	-	-	P
Fibrosis	-	-	-	-	-	-	-	2	-
Hyperplasia, Lymphocytic	-	-	-	-	-	-	-	3	-
Hyperplasia, Erythroid Cell	-	2	2	3	2	2	1	2	-
Pigmentation, NOS	3	3	3	4	4	3	3	3	-
TONGUE									
Mineralization, NOS	1	1	2	1	2	1	2	1	1
SKELETAL MUSCLE									
	N	N	N	N	N	N	N	N	N
LUNGS									
		N	N	N		N			
Inflammation, Chronic	-	-	-	-	-	-	1	1	-
Lymphocytic Infiltrates	1	-	-	-	-	-	-	-	3
Mineralization, NOS	1	-	-	-	1	-	-	1	-
KIDNEY									
Chronic Progressive Nephropathy	2	2	2	2	2	2	2	2	2
Cytoplasmic Droplets	3	4	3	3	3	3	3	3	3
Mineralization, NOS, Medulla	2	2	2	2	3	2	2	3	2
Pigmentation, NOS	3	3	3	3	3	3	3	3	3
URINARY BLADDER									
	N	N	N	N	N	N	N	N	N
STOMACH									
	N	N	N	N	N	N	N	N	N
DUODENUM									
	N	N	N	N	N	N	N	N	N
ILEUM									
	N	N	N	N	N	N	N	N	N
CECUM									
	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	27	28	29	30	31	32	33	34	35
RECTUM	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N					N	N		
Mononuclear Cell Leukemia	-	-	-	-	-	-	-	-	P
Inflammation, Chronic	-	1	1	-	1	-	-	1	1
Pigmentation, NOS	-	1	1	1	-	-	-	1	1
Hemorrhage	-	-	-	1	-	-	-	-	-
OVARIES	N	N	N	N		N	N	N	
Cyst, Follicular	-	-	-	-	P	-	-	-	P
UTERUS		N				N	N	N	
Endometrial Stromal Polyp	P	-	-	P	P	-	-	-	P
Dilatation, Lumen	4	-	1	2	4	-	-	-	-
MAMMARY GLAND		N		N	N		N		
Fibroadenoma	-	-	-	-	-	P	-	-	-
Dilatation, Alveolar/Ductal	3	-	1	-	-	-	-	2	2
SKIN		N	N	N	N	N		N	N
Lipoma	-	-	-	-	-	-	P	-	-
Hemorrhage, Muscle	4	-	-	-	-	-	-	-	-
CLITORAL GLAND					N				
Adenocarcinoma	-	-	-	-	-	-	P	-	-
Adenoma	-	-	P	-	-	-	-	-	-
Hyperplasia, Epithelial	-	-	-	-	-	2	-	2	-
Degeneration, Acinar	-	2	-	1	-	-	-	2	-
Inflammation, Chronic/Active	-	-	-	1	-	-	-	1	-
Inflammation, Suppurative	-	2	-	-	-	-	-	-	-
Lymphocytic Infiltrates	1	2	-	-	-	1	-	-	1

EYES

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	27	28	29	30	31	32	33	34	35
EYES									
Cataract	PI	PI	PI	PI	PI	PI	-	PI	PI
Mineralization, NOS, Cornea	2	1	1	2	-	2	1	1	1
Inflammation, Chronic/Active, Iris	-	-	-	2	-	2	-	-	-
HARDERIAN GLAND					N	N			
Degeneration, Acinar	-	-	1	2	-	-	1	-	1
Lymphocytic Infiltrates	1	1	1	-	-	-	-	1	-
NASAL				N					
Inflammation, Chronic/Active	-	2	-	-	-	-	-	1	-
Inflammation, Suppurative	2	-	2	-	2	2	1	-	3
FEMUR/BONE MARROW		N	N		N	N	N	N	
Hyperplasia, Erythroid Cell	2	-	-	2	-	-	-	-	-
Hyperplasia, Myeloid	-	-	-	-	-	-	-	-	3
MESENTERY									
Inflammation, Chronic	3	-	-	-	-	-	-	-	-
Mineralization, NOS	4	-	-	-	-	-	-	-	-
Necrosis, Fat	4	-	-	-	-	-	-	-	-
Hemorrhage	2	-	-	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 1				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	36	37	38	39	40	41	42	43	44
BRAIN	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N
PANCREAS	N				N				
Degeneration, Acinar	-	2	1	1	-	1	-	1	-
Vacuolization, Cytoplasmic	-	-	-	-	-	-	-	-	2
Inflammation, Chronic	-	1	-	1	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	2	-	-
MANDIBULAR LYMPH NODE									N
Mononuclear Cell Leukemia	-	-	-	-	-	-	P	-	-
Plasmacytosis	1	3	-	2	2	2	-	1	-
Inflammation, Chronic	-	2	-	-	-	-	-	-	-
Pigmentation, NOS	-	-	-	2	-	1	-	-	-
Hemorrhage	-	2	2	-	-	-	-	1	-
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N
PITUITARY	N		N	N				N	N
Adenoma, Pars Distalis	-	-	-	-	P	P	-	-	-
Cyst, NOS, Pars Distalis	-	-	-	-	P	-	-	-	-
Hyperplasia, NOS, Pars Distalis	-	2	-	-	-	-	2	-	-
ADRENALS	N	N	N	N	N	N	N	N	
Adenoma, Cortical	-	-	-	-	-	-	-	-	P
THYROID	N	N		N	N	N	N		N
Hyperplasia, C-Cell	-	-	-	-	-	-	-	1	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	36	37	38	39	40	41	42	43	44
THYROID	N	N		N	N	N	N		N
Degeneration, Follicular	-	-	1	-	-	-	-	-	-
PARATHYROID	N	N	N	N	N	N	N	N	U
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS									
Atrophy, NOS	3	3	2	3	3	2	3	3	3
HEART									
Degeneration, Myocardial	2	2	1	1	2	1	3	-	-
Mineralization, NOS	2	2	2	-	2	1	2	1	1
Lymphocytic Infiltrates	-	-	-	-	-	-	3	-	-
Inflammation, Chronic	1	2	-	1	2	1	2	1	1
AORTA	N		N		N	N	N		N
Mineralization, NOS	-	2	-	1	-	-	-	1	-
COLON	N	N	N	N	N	N		N	N
Lymphocytic Infiltrates	-	-	-	-	-	-	2	-	-
JEJUNUM	N	N	N	N	N	N	N	N	N
LIVER									
Hepatocellular Adenoma	P	-	-	-	-	-	-	-	-
Bile Duct Hyperplasia	1	1	1	1	2	-	3	2	1
Basophilic Focus	-	-	-	-	-	-	-	-	P
Basophilic Focus, Multiple	P	P	P	P	-	P	-	P	P
Vacuolization, Hepatocellular	-	-	-	-	-	-	-	-	3
Necrosis, Hepatocellular	1	-	1	-	2	-	4	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE

ANIMAL ID:	36	37	38	39	40	41	42	43	44
LIVER									
Inflammation, Chronic	2	1	2	1	2	2	4	1	1
Lymphocytic Infiltrates	-	-	-	-	-	-	4	-	-
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	-	-	-	P	-	-
Hyperplasia, Erythroid Cell	2	3	3	2	3	3	2	2	3
Pigmentation, NOS	3	4	3	3	3	3	2	2	3
Inflammation, Chronic	-	-	-	-	-	-	2	-	-
TONGUE									
Mineralization, NOS	2	1	1	2	-	1	1	1	1
Inflammation, Chronic/Active	-	-	-	-	-	-	3	-	-
SKELETAL MUSCLE									
	N	N	N	N	N	N	N	N	N
LUNGS									
		N	N						N
Inflammation, Chronic	-	-	-	-	-	1	-	1	-
Lymphocytic Infiltrates	-	-	-	-	-	-	3	-	-
Mineralization, NOS	1	-	-	2	1	1	-	-	-
KIDNEY									
Chronic Progressive Nephropathy	2	2	2	2	2	2	2	2	2
Cytoplasmic Droplets	3	3	3	3	3	3	4	2	3
Lymphocytic Infiltrates	-	-	-	-	-	-	3	-	-
Mineralization, NOS, Medulla	2	2	2	3	2	2	3	2	3
Pigmentation, NOS	3	3	3	3	3	3	4	2	3
URINARY BLADDER									
	N	N	N	N	N	N	N	N	N
STOMACH									
Hyperplasia, Epithelial, Forestomach	-	-	-	2	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study							STUDY NUMBER: 93-004		
FATE: ALL							GROUP: 1		
DAYS ON TEST: ALL							SEX: FEMALE		
ANIMAL ID:	36	37	38	39	40	41	42	43	44
DUODENUM	N	N	N	N	N	N		N	N
Lymphocytic Infiltrates	-	-	-	-	-	-	2	-	-
ILEUM	N	N	N	N	N	N		N	N
Lymphocytic Infiltrates	-	-	-	-	-	-	2	-	-
CECUM	N	N	N	N	N	N		N	N
Lymphocytic Infiltrates	-	-	-	-	-	-	2	-	-
RECTUM	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE									
Mononuclear Cell Leukemia	-	-	-	-	-	-	P	-	-
Inflammation, Chronic	1	1	2	1	1	2	3	-	-
Pigmentation, NOS	2	1	1	1	1	1	1	1	1
OVARIES	N				N	N	N	N	
Cyst, Luteal	-	-	-	-	-	-	-	-	P
Cyst, Follicular	-	-	P	-	-	-	-	-	-
Cyst, NOS	-	-	-	P	-	-	-	-	-
Pigmentation, NOS	-	1	-	-	-	-	-	-	-
UTERUS		N			N			N	N
Endometrial Adenocarcinoma	-	-	-	P	-	-	-	-	-
Endometrial Glandular Hyperplasia	-	-	-	-	-	-	2	-	-
Cystic Endometrial Glandular Hyperplasia	-	-	3	-	-	3	-	-	-
Dilatation, Lumen	2	-	-	-	-	-	4I	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	2	-	-
MAMMARY GLAND	N	N		N	N				N
Fibroadenoma	-	-	P	-	-	-	-	-	-
Dilatation, Alveolar/Ductal	-	-	-	-	-	1	3	2	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	36	37	38	39	40	41	42	43	44
SKIN	N	N	N	N	N	N	N		
Keratoacanthoma	-	-	-	-	-	-	-	-	P
Abscess	-	-	-	-	-	-	-	4	-
CLITORAL GLAND									N
Degeneration, Acinar	1	1	-	-	1	2	2	3	-
Inflammation, Chronic/Active	-	1	-	-	-	-	-	-	-
Inflammation, Suppurative	-	-	-	-	-	-	4	-	-
Lymphocytic Infiltrates	2	1	1	1	1	1	2	2	-
EYES									
Cataract	PI	PI	PI	PI	PI	PI	PI	-	PI
Mineralization, NOS, Cornea	2	-	2	2	2	1	2	2	1
Inflammation, Chronic, Cornea	2	-	-	-	-	-	-	-	-
Inflammation, Chronic/Active, Iris	-	-	-	-	2	2	2	-	-
HARDERIAN GLAND	N	N	N	N	N				
Degeneration, Acinar	-	-	-	-	-	1	-	2	-
Lymphocytic Infiltrates	-	-	-	-	-	-	2	-	1
NASAL									
Inflammation, Chronic/Active	-	1	1	-	-	1	3	1	-
Inflammation, Suppurative	2	-	-	2	2	-	-	-	2
FEMUR/BONE MARROW	N	N	N		N				N
Hyperplasia, Erythroid Cell	-	-	-	2	-	1	-	-	-
Hyperplasia, Myeloid	-	-	-	-	-	-	2	3	-
MESENTERY									
Fibroadenoma	-	-	-	-	-	-	P	-	-
Inflammation, Chronic/Active	-	-	-	-	-	-	4	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	4	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	45	46	47	48	50	51	52	53	54
BRAIN	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N
PANCREAS	N			N		N	N		N
Degeneration, Acinar	-	1	1	-	4	-	-	1	-
Inflammation, Chronic	-	-	-	-	3	-	-	-	-
MANDIBULAR LYMPH NODE		N							
Plasmacytosis	3	-	2	2	3	2	2	1	2
Pigmentation, NOS	1	-	-	1	2	-	1	-	-
Hemorrhage	-	-	-	-	2	-	-	-	-
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	
Cyst, NOS	-	-	-	-	-	-	-	-	P
PITUITARY			N			N		N	
Carcinoma, Pars Distalis	-	-	-	-	-	-	P	-	P
Adenoma, Pars Distalis	-	-	-	P	-	-	-	-	-
Cyst, NOS, Pars Distalis	P	P	-	-	P	-	-	-	-
Hyperplasia, NOS, Pars Distalis	-	-	-	-	3	-	-	-	-
ADRENALS	N	N	N	N	N	N	N	N	N
THYROID		N	N	N	N	N	N	N	N
Cyst, Follicular	P	-	-	-	-	-	-	-	-
PARATHYROID	U	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

ANIMAL ID:	45	46	47	48	50	51	52	53	54
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS								U	
Cyst, NOS	-	-	-	-	-	P	-	-	-
Atrophy, NOS	2	3	3	3	2	3	4	-	3
HEART									
Degeneration, Myocardial	1	2	2	2	2	1	2	-	1
Mineralization, NOS	1	1	2	2	1	1	2	1	1
Inflammation, Chronic	1	2	-	2	2	1	2	1	-
AORTA	N	N	N		N	N	N	N	N
Mineralization, NOS	-	-	-	1	-	-	-	-	-
COLON	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N
LIVER									
Bile Duct Hyperplasia	1	-	2	2	1	-	2	2	2
Basophilic Focus	-	P	P	P	-	P	-	-	-
Basophilic Focus, Multiple	-	-	-	-	P	-	P	P	-
Vacuolization, Hepatocellular	-	-	-	-	-	-	-	-	1
Necrosis, Hepatocellular	-	-	-	-	-	2	-	1	-
Biliary Fibrosis	1	-	1	-	1	-	-	-	-
Inflammation, Chronic	2	2	2	2	2	2	2	2	2
Mitotic Alteration	-	-	-	-	-	-	-	*	3
SPLEEN									
Hyperplasia, Erythroid Cell	2	2	2	3	2	2	3	4	3
Hyperplasia, Myeloid	-	-	-	-	-	-	-	4	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
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STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	45	46	47	48	50	51	52	53	54
SPLEEN									
Pigmentation, NOS	4	4	3	3	2	3	3	-	2
TONGUE									
Mineralization, NOS	2	1	1	2	1	1	2	1	1
Inflammation, Chronic	-	-	-	-	1	-	-	-	-
SKELETAL MUSCLE									
	N	N	N	N	N	N	N	N	N
LUNGS									
Inflammation, Chronic	-	1	1	-	1	-	1	1	1
Mineralization, NOS	-	-	1	-	-	1	-	-	1
Pigmentation, NOS	-	-	-	-	-	1	-	-	-
KIDNEY									
Chronic Progressive Nephropathy	2	2	2	2	2	2	4	1	3
Cytoplasmic Droplets	3	3	3	4	3	3	3	4	3
Mineralization, NOS, Medulla	2	2	2	2	2	3	2	2	2
Pigmentation, NOS	3	3	3	3	3	3	3	2	3
URINARY BLADDER									
	N	N	N	N	N	N	N	N	N
STOMACH									
Hyperplasia, Epithelial, Forestomach	2	-	-	-	-	-	-	-	-
DUODENUM									
	N	N	N	N	N	N	N	N	N
ILEUM									
	N	N	N	N	N	N	N	N	N
CECUM									
	N	N	N	N	N	N	N	N	N
RECTUM									
	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

ANIMAL ID:	45	46	47	48	50	51	52	53	54
MESENTERIC LYMPH NODE									
Inflammation, Chronic	1	1	2	2	2	2	2	1	1
Pigmentation, NOS	1	-	2	2	1	2	-	1	1
Hemorrhage	-	-	-	-	2	-	-	-	-
OVARIES									
Cyst, Follicular	N	N	N	N	P	N	P	N	U
UTERUS									
Endometrial Stromal Polyp	-	-	-	-	-	-	P	-	-
Dilatation, Lumen	-	-	-	-	-	-	-	1	-
MAMMARY GLAND									
Fibroadenoma	P	-	-	-	-	-	-	-	-
Dilatation, Alveolar/Ductal	-	2	-	-	2	-	-	2	2
SKIN									
CLITORAL GLAND			N						
Adenocarcinoma	-	-	-	-	-	P	-	P	-
Degeneration, Acinar	3	3	-	2	2	-	2	-	-
Inflammation, Chronic/Active	-	2	-	-	1	-	-	-	-
Inflammation, Suppurative	-	-	-	-	-	4	-	-	-
Lymphocytic Infiltrates	1	-	-	-	-	-	-	-	1
EYES									
Cataract	PI	PI	PI	PI	-	PI	PI	-	-
Mineralization, NOS, Cornea	-	-	-	-	1	2	2	1	2
Inflammation, Chronic/Active, Iris	-	-	-	1	-	-	-	2	-
HARDERIAN GLAND									
Degeneration, Acinar	-	1	1	1	-	2	-	1	2
Lymphocytic Infiltrates	-	1	1	-	-	1	-	2	1

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	45	46	47	48	50	51	52	53	54
NASAL	N					N			
Squamous Cell Papilloma	-	P	-	-	-	-	-	-	-
Inflammation, Chronic/Active	-	-	-	2	1	-	-	-	-
Inflammation, Suppurative	-	4	2	-	-	-	3	1	2
FEMUR/BONE MARROW		N	N	N	N	N			N
Hyperplasia, Erythroid Cell	2	-	-	-	-	-	1	3	-
Hyperplasia, Myeloid	-	-	-	-	-	-	1	3	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 1				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	55	56	57	58	61	62	63	64	65
BRAIN	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N
SALIVARY GLAND			N	N	N	N	N	N	N
Lymphocytic Infiltrates	-	2	-	-	-	-	-	-	-
Degeneration, Acinar	2	-	-	-	-	-	-	-	-
PANCREAS	N		N			N	N		
Degeneration, Acinar	-	2	-	1	2	-	-	3	2
Inflammation, Chronic	-	-	-	-	-	-	-	2	2
Lymphocytic Infiltrates	-	-	-	-	2	-	-	-	-
MANDIBULAR LYMPH NODE			N						
Mononuclear Cell Leukemia	-	P	-	-	-	-	-	-	-
Plasmacytosis	-	-	-	1	-	2	2	2	2
Hyperplasia, Lymphocytic	-	-	-	-	2	-	-	-	-
Pigmentation, NOS	1	-	-	-	2	-	-	-	-
ZYMBAL'S GLAND	N	U	N	N	N	N	N	N	N
PITUITARY		N		N				N	
Adenoma, Pars Distalis	-	-	P	-	-	P	-	-	-
Cyst, NOS, Pars Distalis	P	-	-	-	P	-	-	-	-
Hyperplasia, NOS, Pars Distalis	-	-	-	-	2	-	2	-	1
ADRENALS	N	N	N	N		N	N	N	N
Cyst, NOS	-	-	-	-	P	-	-	-	-
THYROID	N		N	N		N			N
Hyperplasia, C-Cell	-	1	-	-	1	-	2	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 1				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	55	56	57	58	61	62	63	64	65
THYROID	N		N	N		N			N
Cyst, Follicular	-	-	-	-	-	-	-	P	-
PARATHYROID	N	N	N	N	N	N		N	N
Adenoma	-	-	-	-	-	-	P	-	-
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS				U				U	
Mononuclear Cell Leukemia	-	P	-	-	-	-	-	-	-
Atrophy, NOS	2	-	3	-	4	3	3	-	4
HEART									
Degeneration, Myocardial	-	2	2	1	2	-	2	2	1
Mineralization, NOS	1	2	1	2	1	2	2	1	1
Inflammation, Chronic	1	2	1	1	2	1	2	1	1
AORTA	N	N		N		N	N		N
Mineralization, NOS	-	-	1	-	1	-	-	1	-
COLON	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N
LIVER									
Bile Duct Hyperplasia	-	2	2	2	1	-	2	1	-
Basophilic Focus, Multiple	P	P	P	P	P	-	P	P	-
Necrosis, Hepatocellular	-	-	-	-	-	-	1	-	3
Biliary Fibrosis	-	-	1	-	-	-	2	2	-
Inflammation, Chronic	1	2	2	2	2	1	2	2	3
Lymphocytic Infiltrates	-	3	-	-	2	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 1				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	55	56	57	58	61	62	63	64	65
LIVER									
Extramedullary Hematopoiesis	-	-	-	-	2	-	-	-	-
Congestion	-	-	-	-	-	-	2	-	-
SPLEEN									
Mononuclear Cell Leukemia	-	P	-	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	1	-	2	2	3	3	3	2	3
Pigmentation, NOS	3	-	3	3	3	4	3	3	3
TONGUE									
Mineralization, NOS	1	1	1	1	2	2	1	2	1
SKELETAL MUSCLE									
	N	N	N	N	N	N	N	N	N
LUNGS									
Inflammation, Chronic	-	2	-	1	-	-	-	-	1
Lymphocytic Infiltrates	-	3	-	-	-	-	-	-	-
Mineralization, NOS	1	-	1	1	1	-	-	-	1
KIDNEY									
Chronic Progressive Nephropathy	1	2	2	2	2	2	2	1	2
Cytoplasmic Droplets	2	4	3	3	3	3	3	3	3
Lymphocytic Infiltrates	-	3	-	-	-	-	-	-	-
Thrombus	-	-	-	-	-	-	-	-	P
Mineralization, NOS, Medulla	3	2	2	2	2	2	2	2	3
Pigmentation, NOS	3	3	3	3	3	3	3	3	2
URINARY BLADDER									
	N	N	N	N	N	N	N	N	N
STOMACH									
	N	N	N	N	N	N	N	N	N
DUODENUM									
Ectopic Pancreas	-	-	-	P	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	55	56	57	58	61	62	63	64	65
ILEUM	N	N	N	N	N	N	N	N	N
CECUM	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE									
Mononuclear Cell Leukemia	-	P	-	-	-	-	-	-	-
Inflammation, Chronic	1	-	1	1	1	1	1	1	1
Pigmentation, NOS	1	-	1	1	1	1	1	1	-
OVARIES			N	N		N	N	N	N
Granulosa Cell Tumor, Benign	P	-	-	-	-	-	-	-	-
Cyst, Follicular	-	P	-	-	-	-	-	-	-
Cyst, NOS	-	-	-	-	P	-	-	-	-
UTERUS			N		N			N	N
Endometrial Stromal Polyp	-	-	-	-	-	P	-	-	-
Cystic Endometrial Glands	-	2	-	-	-	-	-	-	-
Dilatation, Lumen	4	2	-	1	-	-	2	-	-
MAMMARY GLAND		N	N	N		N		N	N
Fibroadenoma	-	-	-	-	-	-	P	-	-
Dilatation, Alveolar/Ductal	1	-	-	-	2	-	-	-	-
SKIN	N		N	N	N	N	N	N	N
Mononuclear Cell Leukemia	-	P	-	-	-	-	-	-	-
CLITORAL GLAND									
Hyperplasia, Epithelial	-	-	-	-	-	-	-	-	1
Degeneration, Acinar	2	3	-	1	2	1	2	2	2
Inflammation, Suppurative	2	-	2	-	3	-	-	-	-
Lymphocytic Infiltrates	-	4	-	1	1	1	1	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	55	56	57	58	61	62	63	64	65
CLITORAL GLAND									
Abscess	-	-	-	3	-	-	-	-	-
EYES									
Cataract	PI	-	PI	PI	PI	PI	PI	PI	PI
Mineralization, NOS, Cornea	-	1	-	2	-	1	2	-	-
Inflammation, Chronic/Active, Iris	-	-	-	1	-	-	-	1	1
HARDERIAN GLAND	N		N		N	N			
Degeneration, Acinar	-	-	-	1	-	-	2	1	1
Lymphocytic Infiltrates	-	1	-	1	-	-	1	1	1
NASAL			N	N					
Inflammation, Chronic/Active	-	2	-	-	-	1	-	-	-
Inflammation, Suppurative	2	-	-	-	1	-	2	1	1
FEMUR/BONE MARROW	N	N	N	N	N	N	N	N	N
CERVIX									
Endometrial Stromal Polyp	-	-	-	-	-	-	P	-	-

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(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	66	69	70	71	72	73	74	75
BRAIN	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N
PANCREAS	N	N						
Degeneration, Acinar	-	-	2	-	1	2	1	-
Inflammation, Chronic	-	-	1	1	1	2	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	-	1
MANDIBULAR LYMPH NODE								
Plasmacytosis	2	2	2	1	-	2	2	2
Hyperplasia, Lymphocytic	-	-	-	-	2	-	-	-
Hemorrhage	-	-	-	1	1	-	1	2
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N
PITUITARY	N				N	N		N
Adenoma, Pars Distalis	-	P	P	-	-	-	P	-
Hyperplasia, NOS, Pars Distalis	-	-	-	4	-	-	-	-
ADRENALS	N	N	N	N				N
Vacuolization, Cytoplasmic, Cortical	-	-	-	-	3	2	4	-
THYROID	N			N	N	N	N	N
C-Cell Adenoma	-	P	-	-	-	-	-	2
Hyperplasia, C-Cell	-	-	3	-	-	-	-	-
PARATHYROID	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	66	69	70	71	72	73	74	75
TRACHEA	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N
THYMUS								
Atrophy, NOS	4	3	4	4	4	3	4	4
HEART								
Degeneration, Myocardial	-	1	2	1	2	-	1	1
Mineralization, NOS	2	2	1	2	2	1	1	2
Inflammation, Chronic	1	1	1	1	2	1	1	-
AORTA	N	N	N	N	N	N	N	N
COLON	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N
LIVER								
Bile Duct Hyperplasia	-	2	1	2	-	-	-	2
Diaphragmatic Nodule	-	-	-	-	-	P	-	-
Basophilic Focus	-	-	-	-	-	P	-	-
Basophilic Focus, Multiple	P	P	-	P	P	-	-	P
Vacuolization, Hepatocellular	2	-	-	-	-	-	-	-
Necrosis, Hepatocellular	1	1	-	-	2	-	-	2
Biliary Fibrosis	-	1	-	-	-	1	1	-
Inflammation, Chronic	2	2	2	2	2	1	1	2
SPLEEN								
Fibrosis	-	-	1	-	-	-	-	-
Hyperplasia, Erythroid Cell	3	2	3	2	3	3	2	3
Pigmentation, NOS	3	3	3	3	3	3	2	3

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004			
FATE: ALL					GROUP: 1			
DAYS ON TEST: ALL					SEX: FEMALE			
ANIMAL ID:	66	69	70	71	72	73	74	75
TONGUE					N	N	N	
Mineralization, NOS	1	1	1	2	-	-	-	1
SKELETAL MUSCLE	N	N	N	N	N	N	N	N
LUNGS								
Inflammation, Chronic	-	-	1	-	-	-	-	-
Mineralization, NOS	1	1	-	2	1	1	1	1
KIDNEY								
Lipoma	-	-	-	-	P	-	-	-
Chronic Progressive Nephropathy	1	2	2	2	2	2	2	2
Cytoplasmic Droplets	3	2	4	3	3	3	2	3
Mineralization, NOS, Medulla	2	2	2	2	3	2	2	3
Pigmentation, NOS	3	3	3	3	3	2	2	2
URINARY BLADDER	N	N	N	N	N		N	N
Hyperplasia, Epithelial	-	-	-	-	-	2	-	-
STOMACH	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N
CECUM	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE								
Inflammation, Chronic	2	1	1	1	1	2	1	2
Pigmentation, NOS	2	2	1	-	-	-	-	-

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(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

ANIMAL ID:	66	69	70	71	72	73	74	75
OVARIES	N			N	N			N
Cyst, Parovarian	-	P	-	-	-	-	-	-
Cyst, NOS	-	-	-	-	-	P	-	-
Hyperplasia, Interstitial Cell	-	-	3	-	-	-	2	-
UTERUS	N	N				N		N
Endometrial Stromal Polyp	-	-	-	-	P	-	-	-
Cystic Endometrial Glandular Hyperplasia	-	-	4	-	-	-	-	-
Dilatation, Lumen	-	-	-	4I	-	-	2	-
MAMMARY GLAND	N					N		N
Dilatation, Alveolar/Ductal	-	3	3	3	2	-	3	-
Hyperplasia, Epithelial	-	-	-	-	-	-	2	-
SKIN	N	N	N	N	N	N	N	N
CLITORAL GLAND		N						
Fibrosis	-	-	-	-	-	-	2	-
Hyperplasia, Epithelial	-	-	2	-	-	-	-	2
Degeneration, Acinar	1	-	2	-	-	1	3	2
Inflammation, Suppurative	-	-	-	3	3	-	-	-
Lymphocytic Infiltrates	-	-	1	-	-	-	-	1
Dilatation, Ductal	-	-	-	4	-	-	-	-
EYES					N			
Cataract	PI	PI	PI	-	-	PL	-	PI
Mineralization, NOS, Cornea	1	1	1	1	-	-	1	-
HARDERIAN GLAND	N	N		N			N	N
Degeneration, Acinar	-	-	1	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	-	1	1	-	-
NASAL			N	N		N		

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004							
FATE: ALL	GROUP: 1							
DAYS ON TEST: ALL	SEX: FEMALE							
-----								
ANIMAL ID:	66	69	70	71	72	73	74	75
NASAL			N	N		N		
Inflammation, Chronic/Active	-	-	-	-	-	-	-	2
Inflammation, Suppurative	1	3	-	-	2	-	1	-
FEMUR/BONE MARROW	N	N	N	N	N	N	N	
Hyperplasia, Erythroid Cell	-	-	-	-	-	-	-	1
ORAL CAVITY								
Squamous Cell Papilloma	P	-	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE

ANIMAL ID:	104	105	107	108	109	111	112	114	115
MANDIBULAR LYMPH NODE									
Mononuclear Cell Leukemia	-	-	-	-	P	-	-	-	-
PITUITARY									
Cyst, NOS, Pars Distalis	-	-	-	-	-	-	P	A	N
Hyperplasia, NOS, Pars Distalis	-	3	-	-	-	-	-	-	-
LIVER									
Bile Duct Hyperplasia	1	1	1	-	2	2	3	A	1
Basophilic Focus, Multiple	P	P	P	-	-	P	-	-	P
Necrosis, Hepatocellular	-	-	-	1	-	-	2	-	-
Biliary Fibrosis	-	-	1	-	-	-	2	-	-
Inflammation, Chronic/Active	-	-	-	1	-	-	-	-	-
Inflammation, Chronic	2	2	2	-	-	-	-	-	2
Lymphocytic Infiltrates	-	-	-	-	4	3	4	-	-
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	-	P	P	P	A	-
Hyperplasia, Erythroid Cell	2	-	2	-	-	-	-	-	1
Hyperplasia, Myeloid	-	-	3	-	-	-	-	-	-
Pigmentation, NOS	2	1	2	2	-	-	-	-	2
LUNGS									
Inflammation, Chronic	-	-	1	4	-	2	2	A	-
Lymphocytic Infiltrates	-	-	-	-	3	3	4	-	-
Mineralization, NOS	2	-	-	2	-	-	-	-	1
Congestion	-	2	-	-	-	-	-	-	-
KIDNEY									
Chronic Progressive Nephropathy	2	2	2	2	2	2	2	A	1
Cytoplasmic Droplets	2	2	2	2	3	3	4	-	2
Lymphocytic Infiltrates	-	-	-	-	4	-	-	-	-
Mineralization, NOS, Medulla	2	2	2	2	2	2	2	-	1

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 2
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	104	105	107	108	109	111	112	114	115
KIDNEY								A	
Pigmentation, NOS	1	1	2	2	2	2	3	-	2
MESENTERIC LYMPH NODE									
Mononuclear Cell Leukemia	-	-	-	-	P	-	-	-	-
OVARIES									
Thecoma	-	-	P	-	-	-	-	-	-
Cyst, Parovarian	P	-	-	-	-	P	-	-	-
UTERUS									
Endometrial Stromal Polyp	-	P	P	-	-	-	-	-	-
MAMMARY GLAND									
Adenocarcinoma	-	-	P	-	-	-	-	-	-
Fibroadenoma	-	-	-	P	P	-	-	-	-
Adenoma	-	-	-	P	-	-	-	-	-
SKIN									
Epidermal Inclusion Cyst	-	-	-	-	P	-	-	-	-
CLITORAL GLAND									
Adenocarcinoma	-	-	-	-	-	P	-	-	-
Adenoma	-	-	-	-	-	-	P	-	-
Squamous Cell Papilloma	-	P	-	-	-	-	-	-	-
Inflammation, Suppurative	-	4	-	-	-	-	-	-	-
EYES									
Cataract	-	-	-	-	-	-	PL	2	-
Mineralization, NOS, Cornea	-	-	-	-	-	-	2	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 2								
DAYS ON TEST: ALL	SEX: FEMALE								
ANIMAL ID:	116	117	118	120	121	122	123	124	125
MANDIBULAR LYMPH NODE									
Plasmacytosis	-	-	-	-	3	-	-	-	-
Inflammation, Chronic	-	-	-	-	2	-	-	-	-
Hemorrhage	-	-	-	-	3	-	-	-	-
PITUITARY									
Adenoma, Pars Distalis	-	-	-	-	-	P	P	P	-
ADRENALS									
Vacuolization, Cytoplasmic, Cortical	4	-	-	-	-	-	-	-	-
LIVER									
Histiocytic Sarcoma	P	-	-	-	-	-	-	-	-
Hyperplasia, Hepatocellular	-	-	-	-	-	-	-	-	3
Bile Duct Hyperplasia	-	1	-	-	1	2	3	2	-
Basophilic Focus, Multiple	-	P	P	P	P	P	-	P	P
Vacuolization, Hepatocellular	-	-	-	-	-	-	3	-	-
Necrosis, Hepatocellular	-	1	-	3	-	-	3	-	1
Hepatocytomegaly	-	-	-	-	-	-	2	-	-
Biliary Fibrosis	-	-	-	-	-	-	2	1	1
Inflammation, Chronic	-	-	1	-	2	1	-	1	-
Lymphocytic Infiltrates	-	-	-	3	-	-	4	-	-
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	P	-	-	P	-	-
Histiocytic Sarcoma	P	-	-	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	-	1	2	-	1	2	-	2	2
Pigmentation, NOS	-	1	2	-	2	2	-	2	2
LUNGS		N			N	N		N	
Histiocytic Sarcoma	P	-	-	-	-	-	-	-	-
Inflammation, Chronic	-	-	1	1	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	2	-	-	4	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 2
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	116	117	118	120	121	122	123	124	125
 LUNGS									
Mineralization, NOS	-	N	-	1	N	N	-	N	1
 KIDNEY									
Histiocytic Sarcoma	P	-	-	-	-	-	-	-	-
Chronic Progressive Nephropathy	-	3	1	2	2	1	3	2	1
Cytoplasmic Droplets	2	2	2	3	2	3	4	3	2
Mineralization, NOS, Medulla	2	2	2	2	1	2	2	2	1
Pigmentation, NOS	2	1	2	3	2	2	4	2	1
 MESENTERIC LYMPH NODE									
Mononuclear Cell Leukemia	-	-	-	P	-	-	-	-	-
Dilatation, Medulla	-	-	-	4	-	-	-	-	-
 MAMMARY GLAND									
Fibroadenoma	-	P	-	-	-	-	-	-	-
 PERIPANCREATIC TISSUE									
Histiocytic Sarcoma, Lymph Node	P	-	-	-	-	-	-	-	-
Hemorrhage, Lymph Node	4	-	-	-	-	-	-	-	-
Necrosis, Lymph Node	4	-	-	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE  
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ANIMAL ID:	126	128	129	130	131	132	133	134	135
PITUITARY									
Carcinoma, Pars Distalis	-	-	-	-	-	-	P	-	-
Adenoma, Pars Distalis	-	-	P	P	-	-	-	-	P
Hyperplasia, NOS, Pars Distalis	-	-	-	-	-	-	-	3	-
ADRENALS									
Pheochromocytoma	-	-	-	-	-	-	-	-	P
Hyperplasia, NOS, Cortical	3	-	-	-	-	-	-	-	-
THYMUS									
Atrophy, NOS	-	-	-	-	3	-	-	-	-
HEART									
Schwannoma	P	-	-	-	-	-	-	-	-
Degeneration, Myocardial	3	-	-	-	-	-	-	-	-
Mineralization, NOS	2	-	-	-	-	-	-	-	-
Inflammation, Chronic	2	-	-	-	-	-	-	-	-
Fibrosis	2	-	-	-	-	-	-	-	-
LIVER									
Hyperplasia, Hepatocellular	-	-	-	-	-	-	-	-	2
Bile Duct Hyperplasia	2	2	-	2	-	1	1	2	1
Eosinophilic Focus	-	-	-	P	-	-	-	-	-
Basophilic Focus, Multiple	P	P	P	P	P	P	-	P	-
Necrosis, Hepatocellular	-	1	-	-	1	-	1	-	-
Biliary Fibrosis	2	1	1	-	-	-	-	2	1
Inflammation, Chronic/Active	-	-	-	-	-	-	1	-	-
Inflammation, Chronic	2	1	2	1	1	-	1	3	1
Degeneration, Cystic	-	-	-	4	-	-	-	2	-
Lymphocytic Infiltrates	-	-	-	-	-	4	-	-	-
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	-	-	P	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 2								
DAYS ON TEST: ALL	SEX: FEMALE								
ANIMAL ID:	126	128	129	130	131	132	133	134	135
SPLEEN									
Fibrosis	-	2	-	1	-	-	2	-	1
Hyperplasia, Lymphocytic	2	-	-	2	-	-	-	-	-
Hyperplasia, Erythroid Cell	-	2	3	2	4	-	-	2	2
Hyperplasia, Myeloid	-	-	-	-	3	-	-	-	-
Pigmentation, NOS	-	2	3	1	-	-	3	2	3
LUNGS	N						N		
Osteosarcoma, Metastatic	-	-	-	-	P	-	-	-	-
Inflammation, Chronic	-	-	1	1	-	-	-	1	1
Lymphocytic Infiltrates	-	-	-	-	-	2	-	-	-
Mineralization, NOS	-	1	-	-	-	1	-	1	2
KIDNEY									
Chronic Progressive Nephropathy	1	2	2	1	1	2	2	2	2
Cytoplasmic Droplets	2	2	3	2	2	2	2	2	2
Mineralization, NOS, Medulla	1	2	2	2	1	2	1	1	2
Pigmentation, NOS	2	2	2	1	1	1	1	2	1
URINARY BLADDER					N				
OVARIES									
Cyst, Parovarian	-	P	-	-	-	-	-	-	-
UTERUS									
Endometrial Stromal Polyp	-	-	-	-	-	-	-	P	-
Hemorrhage	-	-	-	-	4	-	-	-	-
PERIPANCREATIC TISSUE									
Congestion, Lymph Node	-	2	-	-	-	-	-	-	-
Pigmentation, NOS	-	2	-	-	-	-	-	-	-
PELVIS/SPINE									

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE

ANIMAL ID:	126	128	129	130	131	132	133	134	135
PELVIS/SPINE									
Osteosarcoma	-	-	-	-	P	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 2								
DAYS ON TEST: ALL	SEX: FEMALE								
ANIMAL ID:	137	138	139	140	142	143	144	145	146
PITUITARY									
Carcinoma, Pars Distalis	P	-	-	-	-	-	-	-	-
Adenoma, Pars Distalis	-	P	P	-	-	P	P	P	-
ADRENALS									
Atrophy, NOS	-	-	-	3	-	-	-	-	-
LIVER									
Bile Duct Hyperplasia	-	2	-	2	-	2	2	2	2
Diaphragmatic Nodule	P	-	-	-	-	-	-	-	-
Eosinophilic Focus, Multiple	-	P	-	-	-	-	-	-	-
Basophilic Focus, Multiple	P	P	P	P	-	P	P	P	P
Vacuolization, Hepatocellular	-	-	1	-	4	-	-	-	-
Necrosis, Hepatocellular	-	-	-	-	-	-	-	-	2
Biliary Fibrosis	-	1	-	2	-	-	2	-	-
Inflammation, Chronic	1	2	-	2	-	2	2	1	3
Degeneration, Cystic	-	2	-	-	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	2
SPLEEN							N		
Fibrosis	2	-	1	-	-	-	-	-	-
Hyperplasia, Lymphocytic	-	-	-	-	-	-	-	-	3
Hyperplasia, Erythroid Cell	2	2	3	-	-	1	-	2	1
Hyperplasia, Myeloid	-	-	3	-	-	-	-	-	-
Pigmentation, NOS	1	2	-	2	2	2	-	2	2
LUNGS	N	N			N	N	N	N	N
Inflammation, Chronic	-	-	-	1	-	-	-	-	-
Mineralization, NOS	-	-	1	-	-	-	-	2	-
KIDNEY									
Chronic Progressive Nephropathy	2	2	3	2	3	2	2	2	2
Cytoplasmic Droplets	3	2	4	2	1	2	4	2	2

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 2								
DAYS ON TEST: ALL	SEX: FEMALE								
ANIMAL ID:	137	138	139	140	142	143	144	145	146
KIDNEY									
Vacuolization, Cytoplasmic	-	-	-	-	3	-	-	-	-
Mineralization, NOS, Medulla	1	1	2	1	2	2	2	2	2
Pigmentation, NOS	2	2	2	2	1	1	2	2	2
OVARIES									
Cyst, Parovarian	-	-	-	-	-	-	P	-	-
UTERUS									
Endometrial Stromal Polyp	P	-	-	-	-	-	-	P	-
MAMMARY GLAND									
Fibroadenoma	P	-	-	-	-	-	-	-	-
Galactocoele	-	-	P	-	-	-	-	-	-
Necrosis	-	-	3	-	-	-	-	-	-
Inflammation, Suppurative	-	-	4	-	-	-	-	-	-
SKIN									
Ulceration	4	-	-	-	-	-	-	4	-
Inflammation, Chronic/Active	4	-	-	-	-	-	-	4	-
Hemorrhage	4	-	-	-	-	-	-	2	-
CLITORAL GLAND									
Adenocarcinoma	-	-	P	-	-	-	P	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	147	148	149	150
<b>BRAIN</b>				
Granular Cell Tumor	P	-	-	-
<b>MANDIBULAR LYMPH NODE</b>				
Plasmacytosis	-	-	2	-
Hemorrhage	-	-	2	-
<b>PITUITARY</b>				
Cyst, NOS, Pars Distalis	-	-	-	P
Hyperplasia, NOS, Pars Distalis	-	-	-	P
<b>LIVER</b>				
Bile Duct Hyperplasia	3	2	-	1
Basophilic Focus	-	-	-	P
Basophilic Focus, Multiple	P	P	P	P
Biliary Fibrosis	-	1	-	-
Inflammation, Chronic	-	-	2	2
Lymphocytic Infiltrates	3	-	-	-
<b>SPLEEN</b>				
Mononuclear Cell Leukemia	P	-	-	-
Fibrosis	3	-	-	-
Hyperplasia, Erythroid Cell	-	1	2	-
Pigmentation, NOS	-	1	2	2
<b>LUNGS</b>				
			N	N
Inflammation, Chronic	-	1	-	-
Lymphocytic Infiltrates	4	-	-	-
<b>KIDNEY</b>				
Chronic Progressive Nephropathy	3	2	3	1
Cytoplasmic Droplets	4	2	3	2
Mineralization, NOS, Medulla	2	1	2	1

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

ANIMAL ID:	147	148	149	150
KIDNEY				
Pigmentation, NOS	4	2	2	2
MAMMARY GLAND				
Fibroadenoma	-	P	P	P
CLITORAL GLAND				
Adenoma	-	-	-	P

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 3
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	180	181	182	183	184	185	186	187	188
PITUITARY									
Adenoma, Pars Distalis	P	-	-	-	-	-	P	P	-
LIVER									
Bile Duct Hyperplasia	2	2	-	1	2	-	2	-	-
Vacuolated Cell Focus	-	-	-	-	P	-	-	-	-
Eosinophilic Focus	-	-	-	-	P	-	-	-	-
Basophilic Focus, Multiple	P	P	P	P	P	P	P	P	-
Vacuolization, Hepatocellular	-	-	-	3	-	-	-	-	3
Necrosis, Hepatocellular	-	-	-	-	-	-	1	-	-
Biliary Fibrosis	-	-	-	-	1	1	-	-	-
Inflammation, Chronic	3	2	2	-	2	1	2	1	-
Mineralization, NOS	-	-	-	-	-	-	-	-	3
SPLEEN									
Fibrosis	-	-	1	2	-	-	-	-	-
Hyperplasia, Erythroid Cell	1	1	-	1	2	2	1	2	-
Hyperplasia, Myeloid	-	-	-	2	-	-	-	-	-
Pigmentation, NOS	1	-	1	2	2	1	1	1	4
LUNGS									
Squamous Cell Carcinoma, Metastatic	-	-	-	P	-	-	-	-	-
Inflammation, Chronic	-	1	-	-	-	-	-	1	-
Mineralization, NOS	-	1	-	-	1	-	-	1	-
KIDNEY									
Chronic Progressive Nephropathy	2	2	2	1	2	1	1	2	-
Cytoplasmic Droplets	-	-	-	-	-	-	-	2	-
Vacuolization, Cytoplasmic	-	-	-	2	-	-	-	-	4
Mineralization, NOS, Medulla	2	2	2	2	2	1	3	2	1
Pigmentation, NOS	1	1	-	-	-	-	1	1	-
UTERUS									

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	180	181	182	183	184	185	186	187	188
UTERUS									
Endometrial Stromal Polyp	-	-	P	-	P	-	-	-	-
Dilatation, Lumen	-	-	-	-	41	-	-	-	-
MAMMARY GLAND									
Adenocarcinoma	-	-	-	-	-	P	-	-	-
Fibroadenoma	-	-	-	-	-	-	P	P	-
SKIN									
Squamous Cell Carcinoma	-	-	-	P	-	-	-	-	-
Sarcoma, NOS	-	-	-	P	-	-	-	-	-
CLITORAL GLAND									
Degeneration, Acinar	-	3	-	-	-	-	-	-	-
Dilatation, Ductal	-	4	-	-	-	-	-	-	-
Inflammation, Chronic	-	2	-	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE

ANIMAL ID:	190	191	192	193	194	195	196	197	198
<b>PITUITARY</b>									
Carcinoma, Pars Distalis	-	-	P	-	-	-	-	-	-
Adenoma, Pars Distalis	-	P	-	-	P	-	P	P	-
Adenoma, Pars Intermedia	-	-	-	-	-	-	P	-	-
Hyperplasia, NOS, Pars Distalis	-	-	-	-	-	-	-	-	3
<b>LIVER</b>									
Bile Duct Hyperplasia	1	2	2	2	-	2	-	1	3
Diaphragmatic Nodule	-	-	-	-	-	-	-	-	P
Eosinophilic Focus, Multiple	-	-	-	P	-	-	-	-	-
Basophilic Focus, Multiple	P	-	P	P	P	-	P	P	P
Vacuolization, Hepatocellular	-	-	-	-	-	3	-	-	-
Necrosis, Hepatocellular	1	3	1	-	-	3	-	1	-
Hepatocytomegaly	-	3	-	-	-	-	2	-	-
Biliary Fibrosis	-	2	-	2	-	-	-	-	2
Pigmentation, NOS	-	3	-	-	-	-	-	-	-
Inflammation, Chronic/Active	-	3	2	-	-	-	-	-	-
Inflammation, Chronic	2	-	-	2	1	-	2	-	1
Lymphocytic Infiltrates	-	3	-	2	-	3	-	-	-
<b>SPLEEN</b>									
									N
Mononuclear Cell Leukemia	-	P	-	P	-	P	-	P	-
Hyperplasia, Erythroid Cell	-	-	-	-	-	-	2	4	-
Hyperplasia, Myeloid	-	-	-	-	-	-	-	4	-
Pigmentation, NOS	1	-	1	-	1	-	1	-	-
<b>LUNGS</b>									
									N
Alveolar/Bronchiolar Hyperplasia	-	-	-	-	-	2	-	-	-
Inflammation, Chronic	-	-	-	1	-	-	2	-	-
Inflammation, Chronic/Active	-	-	-	-	-	2	-	-	-
Lymphocytic Infiltrates	-	2	-	2	-	4	-	2	-
Mineralization, NOS	1	-	-	-	1	-	2	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
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STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE  
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ANIMAL ID:	190	191	192	193	194	195	196	197	198
KIDNEY									
Chronic Progressive Nephropathy	2	3	1	1	3	3	4	2	2
Cytoplasmic Droplets	-	2	-	-	-	-	-	4	-
Lymphocytic Infiltrates	-	-	-	-	-	2	-	-	-
Vacuolization, Cytoplasmic	-	3	-	-	-	-	-	-	-
Mineralization, NOS, Medulla	2	2	1	3	2	2	2	1	2
Pigmentation, NOS	1	-	1	1	-	3	-	1	-
OVARIES									
Cyst, Parovarian	-	-	-	-	P	-	-	-	-
Hyperplasia, Epithelial Cell	-	-	-	-	3	-	-	-	-
UTERUS									
Endometrial Stromal Polyp	-	-	P	-	-	-	-	-	-
Endometrial Glandular Hyperplasia	-	-	-	2	-	-	-	-	-
MAMMARY GLAND									
Fibroadenoma	-	P	-	-	-	-	-	-	-
CLITORAL GLAND									
Adenocarcinoma	-	-	-	-	-	-	-	P	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE  
-----

ANIMAL ID:	199	200	201	202	203	204	205	206	207
<b>PITUITARY</b>									
Carcinoma, Pars Distalis	-	-	-	-	-	P	-	P	-
Adenoma, Pars Distalis	P	-	-	-	P	-	-	-	P
<b>LIVER</b>									
Hepatocellular Adenoma	P	-	P	-	P	-	-	-	-
Bile Duct Hyperplasia	-	2	1	2	-	-	-	-	1
Basophilic Focus, Multiple	P	P	P	-	P	P	P	-	P
Vacuolization, Hepatocellular	-	-	-	3	-	1	-	4	-
Necrosis, Hepatocellular	-	-	-	3	-	-	-	2	-
Hepatocytomegaly	-	-	-	3	-	-	-	3	-
Biliary Fibrosis	-	-	2	-	-	2	-	-	-
Inflammation, Chronic	2	3	-	-	2	2	1	-	-
Lymphocytic Infiltrates	-	-	-	2	-	-	-	4	-
<b>SPLEEN</b>									
Mononuclear Cell Leukemia	-	-	-	P	-	-	-	P	-
Fibrosarcoma	-	-	-	-	-	-	-	P	-
Fibrosis	-	-	1	-	2	-	-	-	-
Hyperplasia, Erythroid Cell	-	2	1	-	-	2	4	-	2
Hyperplasia, Myeloid	-	-	-	-	-	-	4	-	-
Pigmentation, NOS	1	-	1	-	1	2	-	-	1
<b>LUNGS</b>									
		N	N		N				
Lymphocytic Infiltrates	-	-	-	4	-	-	-	3	-
Mineralization, NOS	1	-	-	-	-	1	2	-	1
<b>KIDNEY</b>									
Chronic Progressive Nephropathy	2	2	1	1	1	4	2	3	2
Cytoplasmic Droplets	-	-	-	-	-	2	2	-	1
Vacuolization, Cytoplasmic	-	-	-	3	-	-	-	-	-
Mineralization, NOS, Medulla	1	2	2	1	3	3	1	1	2
Pigmentation, NOS	-	-	-	3	-	2	2	-	1

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE

ANIMAL ID:	199	200	201	202	203	204	205	206	207
UTERUS									
Endometrial Stromal Polyp	-	-	P	-	-	-	-	-	-
MAMMARY GLAND									
Fibroadenoma	-	P	-	-	-	P	-	-	-
CLITORAL GLAND									
Adenoma	-	-	-	-	-	-	P	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 3
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	208	209	210	211	212	213	214	215	216
-----									
MANDIBULAR LYMPH NODE									
Mononuclear Cell Leukemia	-	-	-	P	-	-	-	-	P
Plasmacytosis	-	-	-	3	-	-	-	-	-
Inflammation, Suppurative	-	-	-	2	-	-	-	-	-
Hemorrhage	-	-	-	2	-	-	-	-	1
ZYMBAL'S GLAND									
Sebaceous Cell Adenoma	-	-	-	P	-	-	-	-	-
PITUITARY									
Adenoma, Pars Distalis	P	-	-	P	P	-	P	-	-
Hyperplasia, NOS, Pars Distalis	-	-	-	-	-	4	-	-	-
ADRENALS									
Degeneration, Cystic	-	-	-	-	-	-	-	-	4
THYROID									
C-Cell Adenoma	-	-	-	-	-	P	-	-	-
LIVER									
Bile Duct Hyperplasia	2	-	-	3	2	2	-	-	3
Vacuolated Cell Focus	-	-	-	-	-	-	P	-	-
Basophilic Focus, Multiple	P	P	P	-	P	P	P	-	P
Vacuolization, Hepatocellular	-	-	-	2	-	-	-	-	-
Necrosis, Hepatocellular	-	-	-	3	-	2	-	-	2
Hepatocytomegaly	-	-	-	3	-	-	-	-	-
Biliary Fibrosis	-	-	-	2	2	2	1	-	2
Inflammation, Chronic	2	2	2	-	2	2	2	-	-
Lymphocytic Infiltrates	-	-	-	4	2	-	-	-	4
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	P	-	-	-	P	P
Hyperplasia, Erythroid Cell	2	2	-	-	1	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 3				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	208	209	210	211	212	213	214	215	216
SPLEEN			N			N	N		
Pigmentation, NOS	2	-	-	-	-	-	-	-	-
LUNGS	N					N		A	
Inflammation, Chronic	-	-	-	-	-	-	1	-	2
Lymphocytic Infiltrates	-	-	-	4	-	-	-	-	4
Mineralization, NOS	-	2	1	2	1	-	-	-	-
KIDNEY								A	
Chronic Progressive Nephropathy	2	2	1	3	1	2	2	-	2
Cytoplasmic Droplets	-	-	-	3	-	-	-	-	2
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	4
Mineralization, NOS, Medulla	1	2	2	2	1	2	2	-	2
Pigmentation, NOS	-	1	-	2	2	-	-	-	2
STOMACH									
Mononuclear Cell Leukemia	-	-	-	-	-	-	-	-	P
MESENTERIC LYMPH NODE									
Mononuclear Cell Leukemia	-	-	-	P	-	-	-	-	-
Hemorrhage	-	-	-	2	-	-	-	-	-
OVARIES									
Cyst, Parovarian	-	P	-	-	-	-	-	-	-
UTERUS									
Endometrial Stromal Polyp	-	P	-	-	-	-	-	-	-
Mononuclear Cell Leukemia	-	-	-	-	-	-	-	-	P
MAMMARY GLAND									
Adenocarcinoma	-	P	-	-	-	-	-	-	-
Fibroadenoma	-	P	-	-	P	-	-	-	P
Galactoceles, Multiple	-	-	-	P	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 3				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	208	209	210	211	212	213	214	215	216
CLITORAL GLAND									
Adenoma	-	-	-	-	-	P	-	-	-
PERIPANCREATIC TISSUE									
Mineralization, NOS, Fat	-	-	-	-	-	-	-	-	4
Necrosis, NOS, Fat	-	-	-	-	-	-	-	-	4

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 3
DAYS ON TEST: ALL	SEX: FEMALE

ANIMAL ID:	218	219	220	221	222	223	224	225
<b>PITUITARY</b>								
Adenoma, Pars Distalis	-	P	-	-	-	P	-	-
<b>LIVER</b>								
Bile Duct Hyperplasia	2	3	2	3	2	2	2	-
Eosinophilic Focus	-	-	P	-	-	-	P	-
Basophilic Focus, Multiple	P	P	-	-	P	P	P	P
Necrosis, Hepatocellular	3	3	-	4	2	-	-	1
Hepatocytomegaly	-	-	-	3	-	-	-	-
Biliary Fibrosis	1	2	2	3	1	-	1	-
Inflammation, Chronic	-	-	2	-	-	-	1	2
Lymphocytic Infiltrates	3	-	-	4	3	-	3	-
Karyomegaly	-	-	-	3	-	-	-	-
<b>SPLEEN</b>								
			N					
Mononuclear Cell Leukemia	P	-	-	P	P	-	P	-
Hyperplasia, Erythroid Cell	-	2	-	-	-	-	-	1
Pigmentation, NOS	-	-	-	-	-	2	-	1
<b>LUNGS</b>								
								N
Inflammation, Chronic	-	3	1	-	-	-	-	-
Lymphocytic Infiltrates	4	-	-	4	3	-	4	-
Mineralization, NOS	2	2	1	-	2	1	-	-
<b>KIDNEY</b>								
Chronic Progressive Nephropathy	3	3	3	2	2	2	2	2
Cytoplasmic Droplets	3	1	-	1	3	-	-	-
Mineralization, NOS, Medulla	2	2	2	1	2	2	2	2
Pigmentation, NOS	3	1	-	2	4	-	-	-
<b>OVARIES</b>								
Granulosa Cell Tumor, Malignant	-	-	P	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 3
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	218	219	220	221	222	223	224	225
 UTERUS								
Leiomyosarcoma	-	-	-	-	P	-	-	-
Cystic Endometrial Glands	-	-	3	-	-	-	-	-
Inflammation, Chronic/Active	-	-	-	4	-	-	-	-
Necrosis	-	-	-	4	-	-	-	-
Fibrosis, Stromal	-	-	4	-	-	-	-	-
Hemorrhage	-	-	-	3	-	-	-	-
 MAMMARY GLAND								
Fibroadenoma	-	-	P	-	-	P	-	-
 CLITORAL GLAND								
Adenoma	-	P	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE  
-----

ANIMAL ID:	255	256	257	258	259	260	261	262	263
BRAIN	N	N	N	N		N	A	N	N
Necrosis	-	-	-	-	1	-	-	-	-
Hemorrhage	-	-	-	-	1	-	-	-	-
SCIATIC NERVE	N	N	N	N	N	N	A	N	N
SPINAL CORD	N	N	N	N		N	A	N	N
Hemorrhage	-	-	-	-	1	-	-	-	-
Necrosis	-	-	-	-	1	-	-	-	-
SALIVARY GLAND	N		N	N	N	N	N	N	N
Degeneration, Acinar	-	1	-	-	-	-	-	-	-
PANCREAS		N	N			N	N		
Degeneration, Acinar	2	-	-	1	1	-	-	1	2
Inflammation, Chronic	2	-	-	-	-	-	-	-	-
MANDIBULAR LYMPH NODE					N	N			
Plasmacytosis	2	1	3	3	-	-	2	4	2
Pigmentation, NOS	1	-	-	-	-	-	2	-	-
Hemorrhage	-	-	-	-	-	-	-	1	-
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N
PITUITARY	N			N				N	
Carcinoma, Pars Distalis	-	-	-	-	-	P	-	-	-
Adenoma, Pars Distalis	-	P	-	-	-	-	P	-	-
Hyperplasia, NOS, Pars Distalis	-	-	3	-	2	-	-	-	2
ADRENALS	N	N	N		N		A		
Hyperplasia, NOS, Cortical	-	-	-	3	-	-	-	-	-
Vacuolization, Cytoplasmic, Cortical	-	-	-	-	-	2	-	-	2
Pigmentation, NOS	-	-	-	-	-	-	-	2	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study							STUDY NUMBER: 93-004		
FATE: ALL							GROUP: 4		
DAYS ON TEST: ALL							SEX: FEMALE		
ANIMAL ID:	255	256	257	258	259	260	261	262	263
ADRENALS	N	N	N		N		A		
Hemorrhage	-	-	-	-	-	-	-	2	-
THYROID				N	N		A	N	U
Hyperplasia, C-Cell	1	2	2	-	-	3	-	-	-
Mineralization, NOS	1	-	-	-	-	-	-	-	-
PARATHYROID	N	N	N	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS							U		
Mononuclear Cell Leukemia	-	-	-	-	P	-	-	P	-
Atrophy, NOS	3	3	3	3	-	4	-	-	3
Pigmentation, NOS	-	-	3	-	-	-	-	-	-
HEART									
Degeneration, Myocardial	2	2	2	1	-	-	1	1	1
Mineralization, NOS	2	2	2	1	1	2	2	1	1
Inflammation, Chronic	1	1	1	-	-	-	-	2	-
AORTA	N	N	N		N	N	N		N
Mineralization, NOS	-	-	-	1	-	-	-	1	-
COLON	N	N	N	N	N	N	A	N	N
JEJUNUM	N	N	N	N	N	N	A	N	N
LIVER									
Bile Duct Hyperplasia	1	2	-	-	2	-	1	2	-
Diaphragmatic Nodule	-	-	-	-	-	-	-	-	P

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE  
-----

ANIMAL ID:	255	256	257	258	259	260	261	262	263
LIVER									
Eosinophilic Focus	-	P	-	-	-	-	-	-	-
Basophilic Focus, Multiple	P	P	P	P	-	P	-	-	P
Vacuolization, Hepatocellular	1	-	-	-	3	-	-	-	-
Necrosis, Hepatocellular	3	-	2	-	3	2	1	2	1
Hepatocytomegaly	2	-	-	-	3	-	-	-	-
Biliary Fibrosis	-	1	-	-	-	-	-	2	-
Inflammation, Chronic	3	1	3	2	-	1	-	2	2
Lymphocytic Infiltrates	-	-	-	-	4	-	-	4	-
Thrombus	-	-	-	-	-	-	-	P	-
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	-	P	-	-	P	-
Fibrosis	-	-	-	-	-	-	-	2	-
Hyperplasia, Erythroid Cell	1	-	-	-	-	1	2	-	1
Pigmentation, NOS	1	3	1	1	-	2	2	-	1
TONGUE									
Mineralization, NOS	1	1	1	-	2	2	1	1	1
SKELETAL MUSCLE									
	N	N	N	N	N	N	N	N	N
LUNGS									
			N			N	A		N
Alveolar/Bronchiolar Hyperplasia	-	-	-	-	3	-	-	-	-
Inflammation, Chronic	1	-	-	-	-	-	-	2	-
Inflammation, Chronic/Active	-	-	-	-	4	-	-	-	-
Lymphocytic Infiltrates	-	2	-	-	4	-	-	3	-
Mineralization, NOS	-	-	-	1	-	-	-	2	-
Hemorrhage	-	-	-	-	4	-	-	-	-
Congestion	-	-	-	-	4	-	-	-	-
KIDNEY									
							A		
Chronic Progressive Nephropathy	1	3	1	2	2	2	-	2	1

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Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 4								
DAYS ON TEST: ALL	SEX: FEMALE								
ANIMAL ID:	255	256	257	258	259	260	261	262	263
KIDNEY							A		
Cytoplasmic Droplets	-	-	-	1	2	2	-	3	-
Mineralization, NOS, Medulla	2	2	2	2	2	2	-	2	2
Pigmentation, NOS	1	2	2	2	2	2	-	4	1
URINARY BLADDER	N	N	N	N	N	N	N		
Lymphocytic Infiltrates	-	-	-	-	-	-	-	2	1
STOMACH	N	N	N	N		N	A	N	N
Hyperkeratosis, Forestomach	-	-	-	-	2	-	-	-	-
Pigmentation, NOS, Glandular	-	-	-	-	3	-	-	-	-
Necrosis, Glandular	-	-	-	-	2	-	-	-	-
DUODENUM	N	N	N	N	N	N	A	N	N
ILEUM	N	N	N	N	N	N	A	N	N
CECUM	N	N	N	N	N	N	A	N	N
RECTUM	N	N	N	N	N	N	A	N	N
MESENTERIC LYMPH NODE			N				A		
Mononuclear Cell Leukemia	-	-	-	-	P	-	-	-	-
Plasmacytosis	-	-	-	-	-	-	-	2	1
Inflammation, Chronic	1	1	-	2	3	2	-	2	2
Pigmentation, NOS	1	1	-	1	2	-	-	1	1
Hemorrhage	-	-	-	-	-	1	-	-	1
OVARIES	N	N	N	N	N	N	A		N
Cyst, Parovarian	-	-	-	-	-	-	-	P	-
UTERUS		N	N			N	A		
Endometrial Stromal Polyp	-	-	-	PI	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 4				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	255	256	257	258	259	260	261	262	263
UTERUS		N	N			N	A		
Cystic Endometrial Glandular Hyperplasia	-	-	-	3	2	-	-	-	-
Cystic Endometrial Glands	3	-	-	-	-	-	-	-	-
Dilatation, Lumen	-	-	-	-	-	-	-	2	2
MAMMARY GLAND				N			A		
Fibroadenoma	-	-	-	-	-	P	-	-	P
Galactoceles	-	-	-	-	-	P	-	-	-
Dilatation, Alveolar/Ductal	2	1	3	-	4	4	-	3	-
Necrosis	-	-	-	-	2	-	-	-	-
SKIN	N		N	N	N	N	A	N	N
Abscess	-	P	-	-	-	-	-	-	-
CLITORAL GLAND	N								
Degeneration, Acinar	-	1	1	1	2	2	1	-	1
Inflammation, Chronic/Active	-	-	1	-	-	-	-	-	-
Lymphocytic Infiltrates	-	1	-	1	1	-	1	2	-
EYES							A		
Cataract	-	-	PI	PI	PI	PI	-	PI	PI
Mineralization, NOS, Cornea	1	2	-	-	-	2	-	-	-
HARDERIAN GLAND	N			N		N			
Degeneration, Acinar	-	1	-	-	1	-	1	1	1
Lymphocytic Infiltrates	-	1	1	-	-	-	1	-	1
Inflammation, Chronic	-	-	-	-	-	-	-	-	2
NASAL			N		N		A		
Inflammation, Chronic/Active	-	2	-	2	-	-	-	2	2
Inflammation, Suppurative	2	-	-	-	-	2	-	-	-
FEMUR/BONE MARROW	N	N	N	N		N	A		N

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Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	255	256	257	258	259	260	261	262	263
FEMUR/BONE MARROW	N	N	N	N		N	A		N
Hyperplasia, Erythroid Cell	-	-	-	-	-	-	-	2	-
Hyperplasia, Megakaryocytic	-	-	-	-	-	-	-	2	-
Hyperplasia, Myeloid	-	-	-	-	2	-	-	2	-
PERIPANCREATIC TISSUE									
Mononuclear Cell Leukemia	-	-	-	-	-	-	-	P	-
Inflammation, Chronic, Lymph Node	3	-	-	-	-	-	-	-	-
Congestion, Lymph Node	2	-	-	-	-	-	-	-	-
Pigmentation, NOS	2	-	-	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
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STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	264	265	266	267	268	269	270	271	272
BRAIN	N	N		N	N	N	N	N	
Astrocytoma	-	-	P	-	-	-	-	-	-
Hydrocephalus	-	-	-	-	-	-	-	-	3
Astrocytosis	-	-	-	-	-	-	-	-	2
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N		N	N	N
Degeneration, Acinar	-	-	-	-	-	1	-	-	-
PANCREAS	N								N
Islet Cell Adenoma	-	P	-	-	-	-	-	-	-
Degeneration, Acinar	-	-	1	1	2	2	2	-	-
Inflammation, Chronic	-	-	-	-	1	2	2	1	-
MANDIBULAR LYMPH NODE									
Plasmacytosis	2	2	-	2	-	2	2	2	3
Inflammation, Chronic	-	-	-	-	1	-	-	-	-
Pigmentation, NOS	-	1	1	1	2	1	2	-	3
Hemorrhage	-	-	1	-	4	-	-	-	2
ZYMBAL'S GLAND	U	N	N	N	N	N	N	N	N
PITUITARY			N						
Carcinoma, Pars Distalis	-	-	-	-	-	-	-	-	P
Adenoma, Pars Distalis	-	P	-	P	P	-	P	-	-
Cyst, NOS, Pars Distalis, Multiple	P	-	-	-	-	-	-	-	-
Hyperplasia, NOS, Pars Distalis	-	-	-	-	-	3	-	3	-
ADRENALS	N				N				
Adenoma, Cortical	-	-	-	-	-	P	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 4
DAYS ON TEST: ALL	SEX: FEMALE

-----

ANIMAL ID:	264	265	266	267	268	269	270	271	272
-----									
ADRENALS	N				N				
Accessory Cortical Nodule	-	-	P	-	-	-	-	-	P
Vacuolization, Cytoplasmic, Cortical	-	4	-	2	-	-	2	2	2
THYROID	N		N	N	N	N	N	N	N
Hyperplasia, C-Cell	-	1	-	-	-	-	-	-	-
PARATHYROID	U	N	U	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS									
Lipoma	-	-	-	-	-	P	-	-	-
Necrosis	-	-	-	-	-	4	-	-	-
Atrophy, NOS	4	4	3	4	3	-	4	3	3
Lymphocytic Infiltrates	-	-	-	-	-	3	-	-	-
HEART									
Degeneration, Myocardial	2	2	1	1	2	2	2	2	2
Mineralization, NOS	1	2	1	2	2	2	2	2	1
Inflammation, Chronic	2	-	-	1	2	1	2	2	-
AORTA	N	N	N		N		N	N	N
Mineralization, NOS	-	-	-	1	-	1	-	-	-
COLON	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N
LIVER									
Hepatocellular Carcinoma	-	-	-	-	-	-	-	P	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE  
-----

ANIMAL ID:	264	265	266	267	268	269	270	271	272
LIVER									
Bile Duct Hyperplasia	1	-	3	-	-	-	2	1	-
Basophilic Focus, Multiple	P	P	-	-	P	P	P	P	P
Vacuolization, Hepatocellular	-	1	3	-	-	-	-	-	2
Necrosis, Hepatocellular	-	1	-	-	-	-	-	-	1
Pigmentation, NOS	-	-	-	1	-	-	-	-	-
Inflammation, Chronic	2	1	4	2	2	2	2	2	1
Lymphocytic Infiltrates	-	-	-	-	-	3	-	-	-
Mineralization, NOS	-	-	3	-	-	-	-	-	-
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	-	-	P	-	-	-
Fibrosis	-	-	-	2	1	-	-	-	-
Cyst, Capsular, Multiple	-	-	-	-	-	-	P	-	-
Hyperplasia, Erythroid Cell	-	1	2	1	2	-	2	1	-
Pigmentation, NOS	2	2	1	1	2	3	2	2	3
TONGUE									
Mineralization, NOS	2	2	-	1	1	1	1	1	1
Hemorrhage	-	-	-	-	2	-	-	-	-
SKELETAL MUSCLE									
	N	N	N	N	N	N	N	N	N
LUNGS									
				N				N	N
Inflammation, Chronic	1	-	1	-	-	-	-	-	-
Inflammation, Chronic/Active	-	-	-	-	-	2	-	-	-
Lymphocytic Infiltrates	-	-	-	-	-	3	-	-	-
Mineralization, NOS	-	1	1	-	1	1	1	-	-
KIDNEY									
Chronic Progressive Nephropathy	1	3	-	1	2	3	2	1	2
Cytoplasmic Droplets	-	2	-	1	-	1	1	2	1
Lymphocytic Infiltrates	-	-	-	-	-	3	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 4
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	264	265	266	267	268	269	270	271	272
KIDNEY									
Mineralization, NOS, Medulla	2	2	1	2	2	2	2	2	2
Pigmentation, NOS	2	2	1	1	1	3	2	1	2
Dilatation, Pelvis	-	-	-	-	3	-	-	-	-
URINARY BLADDER									
	N	N	N	N	N	N	N	N	N
STOMACH									
Degeneration, Cystic, Glandular	-	-	-	-	-	2	-	-	-
DUODENUM									
	N	N	N	N	N	N	N	N	N
ILEUM									
	N	N	N	N	N	N	N	N	N
CECUM									
	N	N	N	N	N	N	N	N	N
RECTUM									
	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE									
Plasmacytosis	2	-	-	-	-	-	-	-	-
Hyperplasia, Lymphocytic	-	-	-	-	-	-	-	2	-
Inflammation, Chronic	1	2	1	-	2	1	1	2	2
Pigmentation, NOS	1	1	-	-	1	1	1	1	1
Hemorrhage	-	1	-	-	-	-	-	-	-
OVARIES									
Cyst, NOS	-	-	-	-	-	-	-	-	P
Hyperplasia, Interstitial Cell	-	-	-	-	-	-	-	-	2
Pigmentation, NOS	-	1	-	-	-	2	-	-	-
UTERUS									
Endometrial Stromal Polyp	-	-	-	-	-	-	-	P	-
Cystic Endometrial Glandular Hyperplasia	-	3I	-	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 4				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	264	265	266	267	268	269	270	271	272
UTERUS	N		N	U	N	N	N		
Inflammation, Suppurative	-	-	-	-	-	-	-	-	2
Dilatation, Lumen	-	-	-	-	-	-	-	-	4
MAMMARY GLAND	N		N			N			
Fibroadenoma	-	-	-	-	P	-	P	-	-
Dilatation, Alveolar/Ductal	-	4	-	2	3	-	3	2	2
Inflammation, Chronic/Active	-	-	-	-	-	-	-	-	1
SKIN	N	N	N	N	N	N	N	N	N
CLITORAL GLAND									
Degeneration, Acinar	2	1	2	1	1	2	2	2	1
Inflammation, Chronic/Active	-	-	-	-	-	-	-	-	2
Inflammation, Suppurative	-	-	3	2	-	2	-	-	-
Mineralization, NOS	-	-	-	1	-	-	-	-	-
Lymphocytic Infiltrates	1	1	2	-	1	1	1	2	-
EYES									
Cataract	PI	PI	PI	PI	PI	PI	PI	PI	PI
Mineralization, NOS, Cornea	-	-	-	1	-	-	-	2	2
HARDERIAN GLAND				N			N		
Degeneration, Acinar	1	1	1	-	1	2	-	1	2
Lymphocytic Infiltrates	1	1	2	-	1	1	-	1	1
Inflammation, Chronic	1	-	-	-	-	-	-	-	-
Inflammation, Chronic/Active	-	-	2	-	-	-	-	-	-
NASAL	N							N	
Inflammation, Chronic/Active	-	-	-	-	-	2	-	-	1
Inflammation, Suppurative	-	2	2	1	2	-	2	-	-
FEMUR/BONE MARROW	N	N	N	N	N		N	N	

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 4
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	264	265	266	267	268	269	270	271	272
FEMUR/BONE MARROW	N	N	N	N	N		N	N	
Atrophy, NOS, bone marrow	-	-	-	-	-	2	-	-	3
MESENTERY									
Cyst, NOS	-	-	-	-	-	-	-	P	-
Inflammation, Chronic	-	-	-	-	-	-	-	2	-
Mineralization, NOS	-	-	-	-	-	-	-	2	-
Necrosis, Fat	-	-	-	-	-	-	-	3	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 4				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	273	274	275	277	278	279	281	282	283
BRAIN	N	N	N	N	A	N	N	N	N
SCIATIC NERVE	N	N	N	N	A	N	N	N	N
SPINAL CORD	N	N	N	N	A	N	N	N	N
SALIVARY GLAND	N	N	N		A	N	N	N	N
Lymphocytic Infiltrates	-	-	-	1	-	-	-	-	-
PANCREAS	N		N		A				N
Degeneration, Acinar	-	1	-	3	-	1	1	2	-
Inflammation, Chronic	-	-	-	-	-	1	1	2	-
Lymphocytic Infiltrates	-	-	-	3	-	-	-	-	-
MANDIBULAR LYMPH NODE					A				
Mononuclear Cell Leukemia	-	-	-	P	-	-	-	-	P
Plasmacytosis	2	-	1	-	-	2	2	-	-
Hyperplasia, Lymphocytic	-	3	-	-	-	-	-	2	-
Pigmentation, NOS	-	-	-	2	-	-	-	-	-
Hemorrhage	-	-	-	2	-	-	-	-	-
ZYMBAL'S GLAND	N	N	N	N	A	N	N	N	N
PITUITARY					A	N			
Adenoma, Pars Distalis	P	-	-	-	-	-	P	P	-
Cyst, NOS, Pars Distalis	-	-	-	-	-	-	-	P	-
Hyperplasia, NOS, Pars Distalis	-	3	2	3	-	-	-	-	3
ADRENALS		N	N		A		N	N	
Hyperplasia, NOS, Cortical	-	-	-	-	-	2	-	-	-
Hyperplasia, NOS, Medulla	3	-	-	3	-	-	-	-	-
Accessory Cortical Nodule	-	-	-	P	-	-	-	-	-
Vacuolization, Cytoplasmic, Cortical	-	-	-	3	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE  
-----

ANIMAL ID:	273	274	275	277	278	279	281	282	283
ADRENALS		N	N		A		N	N	
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	2
THYROID	N		N	N	A	N	N	N	N
Hyperplasia, C-Cell	-	2	-	-	-	-	-	-	-
PARATHYROID	N	U	N	N	A	N	N	N	N
TRACHEA	N	N	N	N	A	N	N	N	N
ESOPHAGUS	N	N	N	N	A	N	N	N	N
THYMUS					A			U	
Mononuclear Cell Leukemia	-	-	-	-	-	-	-	-	P
Atrophy, NOS	2	3	3	4	-	3	4	-	-
HEART					A				
Degeneration, Myocardial	1	1	-	1	-	-	1	2	2
Mineralization, NOS	1	1	1	1	-	2	2	2	2
Inflammation, Chronic	-	1	1	1	-	1	1	1	2
AORTA	N	N	N	N	A	N	N		
Mineralization, NOS	-	-	-	-	-	-	-	1	1
COLON	N	N	N	N	A	N	N	N	N
JEJUNUM	N	N	N	N	A	N	N	N	N
LIVER					A				
Bile Duct Hyperplasia	-	1	-	3	-	1	2	1	-
Basophilic Focus, Multiple	P	P	P	-	-	P	P	P	P
Vacuolization, Hepatocellular	1	-	-	3	-	-	-	-	-
Necrosis, Hepatocellular	-	-	-	3	-	-	1	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 4				
DAYS ON TEST: ALL					SEX: FEMALE				
ANIMAL ID:	273	274	275	277	278	279	281	282	283
LIVER									
					A				
Hepatocytomegaly	-	-	-	2	-	-	-	-	-
Biliary Fibrosis	-	-	-	2	-	-	1	-	-
Inflammation, Chronic	1	2	-	-	-	-	2	1	-
Lymphocytic Infiltrates	-	-	-	4	-	-	2	-	3
SPLEEN									
		N			A				
Mononuclear Cell Leukemia	-	-	-	P	-	-	P	-	P
Hyperplasia, Erythroid Cell	2	-	2	-	-	1	2	1	-
Hyperplasia, Myeloid	1	-	-	-	-	-	2	-	-
Pigmentation, NOS	2	-	-	-	-	-	-	1	-
TONGUE									
					A				
Mineralization, NOS	1	1	1	2	-	1	1	2	1
Inflammation, Chronic	-	1	-	-	-	-	-	-	-
SKELETAL MUSCLE									
	N	N	N		A	N	N	N	N
Mineralization, NOS	-	-	-	1	-	-	-	-	-
LUNGS									
					A				
Inflammation, Chronic	2	1	1	-	-	1	-	-	-
Inflammation, Chronic/Active	-	-	-	-	-	-	-	1	-
Lymphocytic Infiltrates	-	-	-	3	-	-	1	-	2
Mineralization, NOS	1	2	-	-	-	1	-	1	2
KIDNEY									
					A				
Chronic Progressive Nephropathy	2	2	2	2	-	1	2	1	2
Cytoplasmic Droplets	1	-	-	1	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	2
Mineralization, NOS, Medulla	2	2	2	2	-	2	1	2	1
Pigmentation, NOS	2	2	1	1	-	-	1	1	2
URINARY BLADDER									
	N	N	N	N	A	N	N	N	N

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 4
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	273	274	275	277	278	279	281	282	283
STOMACH	N	N	N	N	A	N	N	N	N
DUODENUM	N	N	N	N	A	N	N	N	N
ILEUM	N	N	N	N	A	N	N	N	N
CECUM	N	N	N	N	A	N	N	N	N
RECTUM	N	N	N	N	A	N	N	N	N
MESENTERIC LYMPH NODE					A				
Mononuclear Cell Leukemia	-	-	-	P	-	-	-	-	P
Hyperplasia, Lymphocytic	-	2	-	-	-	-	-	-	-
Inflammation, Chronic	1	1	2	-	-	2	1	1	1
Necrosis	-	-	-	2	-	-	-	-	-
Pigmentation, NOS	1	-	1	-	-	1	1	1	-
Hemorrhage	-	-	-	2	-	-	-	-	-
OVARIES	N	N	N		A	N	N	N	
Hyperplasia, Interstitial Cell	-	-	-	-	-	-	-	-	2
Lymphocytic Infiltrates	-	-	-	3	-	-	-	-	-
UTERUS	N				A	N	N	N	
Endometrial Adenocarcinoma	-	P	-	-	-	-	-	-	-
Cystic Endometrial Glandular Hyperplasia	-	2I	-	-	-	-	-	-	-
Dilatation, Lumen	-	-	4	2	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	3	-	-	-	-	2
MAMMARY GLAND					A			N	
Fibroadenoma	-	-	P	-	-	P	-	-	-
Adenoma, Cystic	-	P	-	-	-	-	-	-	-
Dilatation, Alveolar/Ductal	4	-	-	-	-	-	2	-	2
Lymphocytic Infiltrates	-	-	-	1	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 4
DAYS ON TEST: ALL	SEX: FEMALE

ANIMAL ID:	273	274	275	277	278	279	281	282	283
SKIN	N	N	N	N	A	N	N	N	N
CLITORAL GLAND					A		N		
Adenoma	-	-	-	-	-	-	-	P	-
Degeneration, Acinar	2	1	3	2	-	1	-	2	2
Inflammation, Suppurative	3	-	-	-	-	-	-	1	-
Lymphocytic Infiltrates	2	1	1	1	-	-	-	-	1
EYES					A	N		N	
Cataract	PI	PI	PI	-	-	-	-	-	-
Mineralization, NOS, Cornea	2	2	2	2	-	-	1	-	2
HARDERIAN GLAND	N				A		N		
Degeneration, Acinar	-	-	1	2	-	1	-	1	-
Lymphocytic Infiltrates	-	2	2	1	-	1	-	1	1
NASAL					A		N		N
Inflammation, Chronic/Active	1	-	-	-	-	-	-	-	-
Inflammation, Suppurative	-	3	3	3	-	3	-	3	-
FEMUR/BONE MARROW	N	N	N	N	A	N	N	N	N
VAGINA									
Hypertrophy, Epithelial	-	-	3	-	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study STUDY NUMBER: 93-004  
FATE: ALL GROUP: 4  
DAYS ON TEST: ALL SEX: FEMALE

ANIMAL ID:	285
BRAIN	N
SCIATIC NERVE	N
SPINAL CORD	N
SALIVARY GLAND	N
PANCREAS	N
MANDIBULAR LYMPH NODE	
Mononuclear Cell Leukemia	P
Hemorrhage	3
ZYMBAL'S GLAND	N
PITUITARY	N
ADRENALS	N
THYROID	N
PARATHYROID	N
TRACHEA	N
ESOPHAGUS	N
THYMUS	
Atrophy, NOS	3
HEART	
Degeneration, Myocardial	1

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE

ANIMAL ID:	285
HEART	
Mineralization, NOS	2
Inflammation, Chronic	1
AORTA	N
COLON	N
JEJUNUM	N
LIVER	
Bile Duct Hyperplasia	1
Inflammation, Chronic	1
Lymphocytic Infiltrates	4
SPLEEN	
Mononuclear Cell Leukemia	P
TONGUE	
Mineralization, NOS	1
SKELETAL MUSCLE	N
LUNGS	
Lymphocytic Infiltrates	4
KIDNEY	
Chronic Progressive Nephropathy	2
Mineralization, NOS, Medulla	2
Pigmentation, NOS	1
URINARY BLADDER	N

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 4
DAYS ON TEST: ALL	SEX: FEMALE

ANIMAL ID:	285
STOMACH	N
DUODENUM	N
ILEUM	N
CECUM	N
RECTUM	N
MESENTERIC LYMPH NODE	
Mononuclear Cell Leukemia	P
Inflammation, Chronic	2
OVARIES	
Cyst, Follicular	P
UTERUS	
Cystic Endometrial Stromal Polyp	P
Dilatation, Lumen	41
MAMMARY GLAND	N
SKIN	N
CLITORAL GLAND	
Degeneration, Acinar	2
EYES	
Mineralization, NOS, Cornea	1
HARDERIAN GLAND	N

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE

ANIMAL ID:

285

NASAL

N

FEMUR/BONE MARROW

N

See Reports Code Table for Symbol Definitions

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
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STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

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ANIMAL ID:	315	316	317	318	319	320	321	324	325
BRAIN	N		N	N	N	N	N	N	N
Necrosis	-	4	-	-	-	-	-	-	-
Hemorrhage	-	4	-	-	-	-	-	-	-
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N		N	N	N	N	N	N	N
Hemorrhage	-	3	-	-	-	-	-	-	-
Necrosis	-	2	-	-	-	-	-	-	-
SALIVARY GLAND	N		N	N	N	N	N	N	N
Degeneration, Acinar	-	1	-	-	-	-	-	-	-
PANCREAS	N		N		N			N	
Hyperplasia, Acinar	-	-	-	2	-	-	-	-	-
Degeneration, Acinar	-	2	-	1	-	1	1	-	1
Inflammation, Chronic	-	-	-	-	-	-	-	-	1
MANDIBULAR LYMPH NODE									
Plasmacytosis	3	1	2	3	3	2	2	2	2
Hemorrhage	1	-	-	-	-	2	-	-	-
Mineralization, NOS	1	-	2	-	-	-	-	-	-
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N
PITUITARY		N				N	N	N	N
Carcinoma, Pars Distalis	-	-	-	-	P	-	-	-	-
Adenoma, Pars Distalis	-	-	P	P	-	-	-	-	-
Hyperplasia, NOS, Pars Distalis	2	-	-	-	-	-	-	-	-
ADRENALS		N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

ANIMAL ID:	315	316	317	318	319	320	321	324	325
ADRENALS		N	N	N	N	N	N	N	N
Vacuolization, Cytoplasmic, Cortical	1	-	-	-	-	-	-	-	-
THYROID				N		N	N	N	N
Hyperplasia, C-Cell	1	-	-	-	-	-	-	-	-
Mineralization, NOS	-	1	1	-	2	-	-	-	-
PARATHYROID	N	N	N		N	N	N	U	N
Adenoma	-	-	-	P	-	-	-	-	-
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS	U			U			U		U
Atrophy, NOS	-	4	4	-	4	4	-	4	-
HEART									
Degeneration, Myocardial	3	-	2	2	2	1	2	3	2
Mineralization, NOS	3	1	2	2	2	2	2	2	2
Inflammation, Chronic	3	-	1	1	-	-	2	2	2
AORTA				N		N		N	N
Mineralization, NOS	2	1	2	-	2	-	1	-	-
Inflammation, Chronic	-	-	-	-	1	-	-	-	-
COLON	N	N	N	N	N	N	A	N	N
JEJUNUM	N	N	N	N	N	N	A	N	N
LIVER									
Bile Duct Hyperplasia	3	3	3	3	3	3	2	3	2
Eosinophilic Focus	P	-	-	-	-	-	-	P	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 5				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	315	316	317	318	319	320	321	324	325
LIVER									
Necrosis, Hepatocellular	1	2	-	-	1	-	-	-	-
Biliary Fibrosis	2	2	2	2	2	2	2	2	2
Inflammation, Chronic/Active	1	-	-	-	-	-	-	-	-
Inflammation, Chronic	-	-	-	-	-	-	-	1	1
SPLEEN									
Mononuclear Cell Leukemia	-	P	-	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	1	3	2	3	2	2	-	1	1
Pigmentation, NOS	2	-	2	2	4	2	2	2	1
Necrosis	-	4	-	-	-	-	-	-	-
TONGUE									
Mineralization, NOS	1	1	1	1	1	1	1	1	1
SKELETAL MUSCLE									
	N	N	N	N	N	N	N	N	N
LUNGS									
		N	N					N	
Inflammation, Chronic	1	-	-	1	-	-	-	-	-
Inflammation, Chronic/Active	-	-	-	-	3	-	3	-	2
Lymphocytic Infiltrates	2	-	-	2	-	-	-	-	-
Mineralization, NOS	-	-	-	-	1	1	-	-	-
Foreign Body, NOS	-	-	-	-	-	-	P	-	-
KIDNEY									
							A		
Chronic Progressive Nephropathy	4	2	4	3	4	3	-	4	4
Cytoplasmic Droplets	2	1	3	2	2	3	-	3	2
Mineralization, NOS, Medulla	1	2	3	3	2	2	-	2	2
Pigmentation, NOS	2	2	3	2	3	3	-	3	2
Dilatation, Tubular	-	3	-	-	-	-	-	-	-
URINARY BLADDER									
	N		N	N	N	N	N	N	N
Hemorrhage	-	4	-	-	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study						STUDY NUMBER: 93-004			
FATE: ALL						GROUP: 5			
DAYS ON TEST: ALL						SEX: MALE			
ANIMAL ID:	315	316	317	318	319	320	321	324	325
STOMACH	N	N	N	N	U	N	A	N	N
DUODENUM	N	N	N	N	U	N	A	N	N
ILEUM	N	N	N	N	N	N	A	N	N
CECUM	N	N		N	N	N	A	N	N
Mineralization, NOS	-	-	2	-	-	-	-	-	-
Degeneration, Mucosal	-	-	3	-	-	-	-	-	-
RECTUM	N	N	N	N	N	N	A	N	N
MESENTERIC LYMPH NODE							A	N	
Inflammation, Chronic	1	1	1	1	2	1	-	-	1
TESTES		N							
Interstitial Cell Adenoma, Multiple	P	-	P	P	P	P	P	P	P
Degeneration, Seminiferous Tubule	4	-	4	4	4	4	4	4	4
EPIDIDYMIDES		N							
Hypospermia	4	-	4	4	4	4	4	4	4
MAMMARY GLAND		U	N			N		N	U
Galactoceles	P	-	-	-	-	-	P	-	-
Dilatation, Alveolar/Ductal	-	-	-	4	3	-	-	-	-
SKIN	N	N	N		N	N		N	N
Squamous Cell Carcinoma	-	-	-	-	-	-	P	-	-
Ulceration	-	-	-	4	-	-	-	-	-
Inflammation, Chronic/Active	-	-	-	4	-	-	-	-	-
PREPUTIAL GLAND							A		
Hyperkeratosis	-	-	-	4	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 5								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	315	316	317	318	319	320	321	324	325
PREPUTIAL GLAND							A		
Degeneration, Acinar	2	-	2	-	3	2	-	-	3
Hyperplasia, Squamous Cell	-	-	-	4	-	-	-	-	-
Inflammation, Suppurative	-	2	-	4	-	2	-	-	-
Lymphocytic Infiltrates	2	-	-	-	1	-	-	-	2
Dilatation, Ductal	-	-	-	-	-	-	-	4	-
EYES							A		
Cataract	PI	-	PI	PI	-	PI	-	PL	PL
Mineralization, NOS, Cornea	1	1	1	-	1	-	-	-	1
HARDERIAN GLAND		N		N	N	N	A	N	N
Lymphocytic Infiltrates	2	-	1	-	-	-	-	-	-
Inflammation, Chronic	1	-	-	-	-	-	-	-	-
NASAL			N			N		N	
Hyperkeratosis	-	-	-	-	2	-	-	-	-
Inflammation, Suppurative	2	3	-	3	3	-	4	-	3
FEMUR/BONE MARROW	N	N	N	N	N	N	A	N	N
MESENTERY									
Inflammation, Chronic/Active, Fat	-	-	-	3	-	-	-	-	-
Necrosis, Fat	-	-	-	3	-	-	-	-	-
SEMINAL VESICLES		N		N					
Atrophy, NOS	4	-	4	-	4	4	4	4	4
PROSTATE	N	N			N		A		
Hyperplasia, Epithelial	-	-	2	1	-	1	-	1	1
Inflammation, Chronic/Active	-	-	-	-	-	1	-	-	-
Inflammation, Suppurative	-	-	-	4	-	-	-	-	-
Mineralization, NOS	-	-	-	-	-	-	-	2	1

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study						STUDY NUMBER: 93-004			
FATE: ALL						GROUP: 5			
DAYS ON TEST: ALL						SEX: MALE			
ANIMAL ID:	327	328	329	330	331	332	333	334	335
BRAIN	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N
PANCREAS	U	N				N		N	N
Degeneration, Acinar	-	-	2	2	1	-	1	-	-
Inflammation, Chronic	-	-	1	2	-	-	-	-	-
Hemorrhage	-	-	-	-	-	-	1	-	-
MANDIBULAR LYMPH NODE					N				
Plasmacytosis	2	3	4	2	-	3	3	3	2
Inflammation, Chronic	1	-	-	-	-	-	-	-	-
Hemorrhage	-	-	-	1	-	-	-	-	2
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N
PITUITARY			N	N		N			
Carcinoma, Pars Distalis	P	-	-	-	-	-	-	-	-
Adenoma, Pars Distalis	-	-	-	-	-	-	-	-	P
Cyst, NOS, Pars Distalis	-	-	-	-	-	-	-	P	-
Hyperplasia, NOS, Pars Distalis	-	1	-	-	3	-	3	-	-
ADRENALS	N	N		N		N		N	N
Pheochromocytoma	-	-	-	-	-	-	P	-	-
Hyperplasia, NOS, Cortical	-	-	-	-	3	-	-	-	-
Hyperplasia, NOS, Medulla	-	-	2	-	-	-	-	-	-
THYROID		N		N		N	N		N
C-Cell Carcinoma	P	-	-	-	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

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ANIMAL ID:	327	328	329	330	331	332	333	334	335
THYROID		N		N		N	N		N
C-Cell Adenoma	-	-	-	-	P	-	-	-	-
Cyst, Follicular	-	-	P	-	-	-	-	P	-
PARATHYROID	N	N	N	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS								U	
Atrophy, NOS	2	4	4	4	4	4	3	-	4
HEART									
Degeneration, Myocardial	1	2	2	2	2	2	2	1	2
Mineralization, NOS	1	2	3	2	2	2	1	1	2
Inflammation, Chronic	1	2	2	1	1	1	1	1	2
AORTA				N			N		N
Mineralization, NOS	1	2	2	-	1	2	-	2	-
COLON	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N
LIVER									
Bile Duct Hyperplasia	2	3	2	3	3	3	3	2	2
Eosinophilic Focus	-	-	P	-	-	-	-	-	-
Eosinophilic Focus, Multiple	-	-	-	-	P	-	P	-	-
Biliary Fibrosis	1	2	2	2	3	2	2	2	2
Inflammation, Chronic	-	1	1	1	1	3	2	2	1
SPLEEN						N			

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 5								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	327	328	329	330	331	332	333	334	335
SPLEEN	N								
Fibrosis	-	-	-	-	1	-	-	-	-
Hyperplasia, Erythroid Cell	2	2	1	2	1	-	1	-	-
Hyperplasia, Myeloid	3	-	-	-	-	-	-	-	-
Pigmentation, NOS	2	1	-	2	-	-	-	2	2
TONGUE									
Mineralization, NOS	1	2	1	1	1	2	3	1	1
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N
LUNGS	N								
Alveolar/Bronchiolar Hyperplasia	-	-	-	-	-	-	-	2	-
Inflammation, Chronic	1	-	-	-	-	-	-	-	-
Inflammation, Chronic/Active	-	-	-	-	2	-	-	3	-
Mineralization, NOS	-	-	-	2	2	2	2	-	1
KIDNEY									
Chronic Progressive Nephropathy	4	4	4	3	4	3	4	3	3
Cytoplasmic Droplets	2	3	3	2	2	2	3	3	3
Mineralization, NOS, Medulla	2	2	2	1	1	2	1	1	1
Pigmentation, NOS	2	3	4	2	3	2	3	2	3
URINARY BLADDER									
Hyperplasia, Epithelial	-	-	-	2	-	-	-	-	-
STOMACH									
Hyperplasia, Epithelial, Forestomach	-	-	-	1	-	-	-	-	-
DUODENUM	N	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 5								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	327	328	329	330	331	332	333	334	335
CECUM	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE									
Inflammation, Chronic	2	2	2	1	2	2	1	1	2
TESTES									
Interstitial Cell Adenoma, Multiple	P	P	P	P	P	P	P	P	P
Mesothelioma	-	-	-	-	-	-	P	-	-
Degeneration, Seminiferous Tubule	4	4	4	4	4	4	4	4	4
EPIDIDYMIDES									
Hypospermia	4	4	4	4	4	4	4	4	4
MAMMARY GLAND		N	N	N		N	N		
Dilatation, Alveolar/Ductal	2	-	-	-	-	-	-	2	2
Pigmentation, NOS	-	-	-	-	2	-	-	-	-
SKIN	N	N	N		N	N			N
Fibroma	-	-	-	P	-	-	-	-	-
Keratoacanthoma	-	-	-	-	-	-	P	-	-
Ulceration	-	-	-	-	-	-	-	4	-
Inflammation, Chronic/Active	-	-	-	-	-	-	-	4	-
PREPUTIAL GLAND									
Degeneration, Acinar	2	2	-	2	2	2	2	3	2
Hyperplasia, Epithelial	-	-	2	-	-	-	-	-	-
Inflammation, Chronic/Active	-	-	-	-	-	2	-	-	-
Inflammation, Suppurative	-	4	2	4	-	-	4	-	-
Lymphocytic Infiltrates	1	2	-	-	3	-	-	-	-
Inflammation, Chronic	-	-	-	-	-	-	-	2	2

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study							STUDY NUMBER: 93-004		
FATE: ALL							GROUP: 5		
DAYS ON TEST: ALL							SEX: MALE		
ANIMAL ID:	327	328	329	330	331	332	333	334	335
EYES							N		
Cataract	PI	PI	PI	-	PL	PI	-	PI	PI
Mineralization, NOS, Cornea	1	2	-	1	1	1	-	-	-
HARDERIAN GLAND	N	N	N	N	N	N	N	N	N
NASAL	N	N	N		N	N	N		N
Inflammation, Suppurative	-	-	-	4	-	-	-	4	-
FEMUR/BONE MARROW	N		N	N	N	N	N		N
Hyperplasia, Erythroid Cell	-	2	-	-	-	-	-	-	-
Hyperplasia, Myeloid	-	-	-	-	-	-	-	2	-
MESENTERY									
Mesothelioma	-	-	P	-	-	-	P	-	-
SEMINAL VESICLES			U						
Atrophy, NOS	4	4	-	4	3	3	4	3	2
ABDOMINAL CAVITY									
Necrosis, Fat	-	-	-	-	-	-	-	4	-
Mineralization, NOS, Fat	-	-	-	-	-	-	-	4	-
Inflammation, Chronic	-	-	-	-	-	-	-	3	-
PROSTATE							N		
Hyperplasia, Epithelial	-	-	1	1	-	1	-	2	-
Inflammation, Chronic/Active	-	-	-	-	-	2	-	2	-
Inflammation, Suppurative	3	-	-	-	2	-	-	-	4
Mineralization, NOS	-	2	-	-	-	-	-	-	-
Degeneration, Acinar	-	3	-	-	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	336	337	338	340	341	342	343	344	345
BRAIN	A	N	N	N	N	N	N	N	N
SCIATIC NERVE	A	N	N	N	N	N	N	N	N
SPINAL CORD	A	N	N	N	N	N	N	N	N
SALIVARY GLAND	A	N	N	N	N	N	N	N	N
PANCREAS	A	N		N	N	N		N	N
Degeneration, Acinar	-	-	2	-	-	-	1	-	-
Inflammation, Chronic	-	-	2	-	-	-	-	-	-
MANDIBULAR LYMPH NODE	A								
Plasmacytosis	-	3	2	2	2	3	3	3	2
Hemorrhage	-	-	-	-	-	1	-	2	3
ZYMBAL'S GLAND	A	N	N	N	N	N	N	N	N
PITUITARY	U	N		N		N	U	N	
Carcinoma, Pars Distalis	-	-	P	-	-	-	-	-	-
Adenoma, Pars Distalis	-	-	-	-	P	-	-	-	P
ADRENALS	A	N	N	N	N		N	N	N
Accessory Cortical Nodule	-	-	-	-	-	P	-	-	-
Vacuolization, Cytoplasmic, Cortical	-	-	-	-	-	2	-	-	-
THYROID	A	N	N	N	N	N	N	N	N
PARATHYROID	U	N	N	N	N	N	N	N	N
TRACHEA	A	N	N	N	N	N	N	N	N
ESOPHAGUS	A	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 5								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	336	337	338	340	341	342	343	344	345
THYMUS	A								
Atrophy, NOS	-	4	3	4	4	4	4	4	4
HEART									
Degeneration, Myocardial	1	2	2	2	2	3	2	2	2
Mineralization, NOS	2	2	2	2	2	3	2	2	2
Inflammation, Chronic	1	1	2	2	1	2	2	2	2
AORTA	A					N	N		
Mineralization, NOS	-	1	1	1	1	-	-	1	1
COLON	A	N	N	N	N	N	N	N	N
JEJUNUM	A	N	N	N	N	N	N	N	N
LIVER									
Hepatocellular Carcinoma	-	-	-	-	-	-	-	P	-
Bile Duct Hyperplasia	3	2	3	3	2	3	3	3	2
Eosinophilic Focus	-	-	-	P	-	-	P	P	-
Eosinophilic Focus, Multiple	-	-	-	-	-	P	-	-	-
Basophilic Focus	-	-	-	P	-	-	-	-	-
Basophilic Focus, Multiple	-	-	-	-	-	-	P	-	-
Biliary Fibrosis	2	2	2	2	2	2	2	2	2
Inflammation, Chronic	2	2	2	2	2	1	-	1	-
SPLEEN									
Hyperplasia, Erythroid Cell	-	-	-	-	1	2	3	1	2
Pigmentation, NOS	4	2	3	2	1	1	-	1	3
TONGUE	A		N			N			N
Mineralization, NOS	-	1	-	1	1	-	1	1	-
SKELETAL MUSCLE	A	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

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ANIMAL ID:	336	337	338	340	341	342	343	344	345
LUNGS				N		N			
Inflammation, Chronic	-	-	-	-	-	-	-	2	-
Inflammation, Chronic/Active	4	4	-	-	-	-	-	-	4
Mineralization, NOS	-	-	2	-	1	-	1	-	2
KIDNEY									
Chronic Progressive Nephropathy	4	4	4	4	4	4	3	4	4
Cytoplasmic Droplets	3	2	3	3	2	3	2	3	3
Mineralization, NOS, Medulla	2	2	2	1	2	1	2	1	-
Pigmentation, NOS	3	2	3	2	2	3	2	3	3
URINARY BLADDER	A	N	N	N	N	N	N	N	N
STOMACH	A	N	N	N	N	N	N	N	N
DUODENUM	A	N	N	N	N	N	N	N	N
ILEUM	A	N	N	N	N	N	N	N	N
CECUM	A	N	N	N	N	N	N	N	N
RECTUM	A	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE	A								
Inflammation, Chronic	-	2	2	1	2	2	2	2	2
TESTES									
Interstitial Cell Adenoma, Multiple	P	P	-	P	P	P	P	P	P
Degeneration, Seminiferous Tubule	4	4	4	4	4	4	4	4	4
EPIDIDYMIDES	A								
Hypospermia	-	4	4	4	4	4	4	4	4

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study						STUDY NUMBER: 93-004			
FATE: ALL						GROUP: 5			
DAYS ON TEST: ALL						SEX: MALE			
ANIMAL ID:	336	337	338	340	341	342	343	344	345
MAMMARY GLAND	A	N		N	N	N		N	
Dilatation, Alveolar/Ductal	-	-	2	-	-	-	2	-	3
SKIN	A	N	N	N					
Sarcoma, NOS	-	-	-	-	-	-	P	-	-
Lipoma	-	-	-	-	-	-	-	P	-
Neural Crest Neoplasm (Ear)	-	-	-	-	P	-	-	-	-
Epidermal Inclusion Cyst	-	-	-	-	-	P	-	-	P
Ulceration	-	-	-	-	-	-	-	-	4
Inflammation, Chronic/Active, Fat	-	-	-	-	-	-	-	3	-
Inflammation, Suppurative	-	-	-	-	-	-	-	-	4
PREPUTIAL GLAND	A								
Degeneration, Acinar	-	2	2	3	2	2	3	2	4
Inflammation, Suppurative	-	-	-	-	-	-	-	3	-
Lymphocytic Infiltrates	-	2	3	2	2	-	-	-	-
Inflammation, Chronic	-	-	-	-	-	2	2	-	3
EYES	A								
Cataract	-	PI	-	PI	PI	PI	PI	PI	-
Mineralization, NOS, Cornea	-	-	1	1	-	1	2	-	1
HARDERIAN GLAND	A	N	N	N	N	N	N	N	N
NASAL	A		N	N	N	N	N	N	
Hyperplasia, Epithelial	-	3	-	-	-	-	-	-	-
Inflammation, Suppurative	-	4	-	-	-	-	-	-	4
FEMUR/BONE MARROW	A	N	N	N	N	N	N	N	N
SEMINAL VESICLES	A								
Atrophy, NOS	-	3	3	4	4	4	2	4	4

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

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ANIMAL ID:	336	337	338	340	341	342	343	344	345
ABDOMINAL CAVITY									
Necrosis, Fat	-	3	-	-	-	-	-	-	-
Mineralization, NOS, Fat	-	3	-	-	-	-	-	-	-
Inflammation, Chronic	-	2	-	-	-	-	-	-	-
PROSTATE									
	A								
Hyperplasia, Epithelial	-	-	2	-	-	1	-	-	-
Inflammation, Chronic	-	-	-	-	-	-	-	-	1
Inflammation, Chronic/Active	-	-	-	1	1	-	-	1	-
Inflammation, Suppurative	-	1	3	-	-	-	3	-	-
Degeneration, Acinar	-	-	-	-	-	-	-	2	1

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 5								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	346	347	348	349	350	352	353	354	356
BRAIN	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N
PANCREAS	N	N	N	N	N	N			N
Islet Cell Adenoma	-	-	-	-	-	-	P	-	-
Degeneration, Acinar	-	-	-	-	-	-	-	1	-
Inflammation, Chronic	-	-	-	-	-	-	-	1	-
MANDIBULAR LYMPH NODE	N								
Plasmacytosis	-	3	3	3	2	3	3	3	3
Hemorrhage	-	2	1	1	-	-	-	-	-
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N
PITUITARY					N		N	N	N
Adenoma, Pars Distalis	-	P	-	P	-	-	-	-	-
Cyst, NOS, Pars Distalis	P	-	-	-	-	P	-	-	-
Hyperplasia, NOS, Pars Distalis	P	-	3	-	-	P	-	-	-
ADRENALS	N		N	N	N	N	N		
Hyperplasia, NOS, Cortical	-	3	-	-	-	-	-	-	-
Hyperplasia, NOS, Medulla	-	-	-	-	-	-	-	2	2
Vacuolization, Cytoplasmic, Cortical	-	2	-	-	-	-	-	-	-
THYROID	N	N	N	N	N		N	N	
C-Cell Adenoma	-	-	-	-	-	-	-	-	P
Hyperplasia, C-Cell	-	-	-	-	-	1	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 5								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	346	347	348	349	350	352	353	354	356
PARATHYROID	N	N	N	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS			U						
Cyst, NOS	-	-	-	-	P	-	-	-	-
Atrophy, NOS	4	4	-	4	4	4	4	4	4
Pigmentation, NOS	3	-	-	-	-	-	-	-	-
Hemorrhage	3	-	-	-	-	-	-	-	-
HEART									
Degeneration, Myocardial	2	2	2	2	2	2	3	2	2
Mineralization, NOS	3	2	2	2	2	2	2	2	2
Inflammation, Chronic	2	1	1	2	2	2	2	2	1
AORTA		N					N		
Mineralization, NOS	2	-	2	1	1	1	-	1	1
COLON	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N
LIVER									
Bile Duct Hyperplasia	3	3	3	2	2	2	2	2	3
Eosinophilic Focus	P	P	P	P	P	-	-	-	-
Eosinophilic Focus, Multiple	-	-	-	-	-	-	P	-	-
Basophilic Focus	-	-	P	-	-	-	P	-	-
Biliary Fibrosis	2	2	2	2	2	2	2	2	2
Inflammation, Chronic	-	2	2	2	-	-	1	1	2
SPLEEN				N		N			

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	346	347	348	349	350	352	353	354	356
SPLEEN				N		N			
Fibrosis	-	-	-	-	-	-	-	1	1
Hyperplasia, Erythroid Cell	-	1	-	-	2	-	1	2	1
Pigmentation, NOS	4	3	2	-	2	-	-	2	1
TONGUE						N			
Mineralization, NOS	1	1	1	2	1	-	2	1	1
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N
LUNGS					N			N	N
Inflammation, Chronic/Active	3	2	1	-	-	3	-	-	-
Mineralization, NOS	2	2	-	1	-	-	1	-	-
KIDNEY									
Chronic Progressive Nephropathy	4	3	4	3	4	4	4	4	4
Cytoplasmic Droplets	2	2	2	2	3	2	2	2	3
Mineralization, NOS, Medulla	1	2	2	2	2	2	-	-	-
Pigmentation, NOS	2	2	3	2	3	2	2	2	2
URINARY BLADDER	N	N	N	N	N	N	N	N	N
STOMACH	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N	N
CECUM	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE									

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 5								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	346	347	348	349	350	352	353	354	356
MESENTERIC LYMPH NODE									
Inflammation, Chronic	1	2	1	1	1	1	1	1	2
TESTES									
Interstitial Cell Adenoma, Multiple	P	P	P	P	P	P	-	P	P
Degeneration, Seminiferous Tubule	4	4	4	4	4	4	4	4	4
Cyst, NOS, Multiple	-	-	-	-	-	-	-	-	P
EPIDIDYIMIDES									
Hypospermia	4	4	4	4	4	4	4	4	4
MAMMARY GLAND									
Dilatation, Alveolar/Ductal	N	U	N		N	N	N	N	N
	-	-	-	2	-	-	-	-	-
SKIN									
	N	N	N	N	N	N	N	N	N
PREPUTIAL GLAND									
Degeneration, Acinar	3	2	3	2	2	2	2	2	2
Hyperplasia, Epithelial	-	2	-	-	-	-	-	-	-
Inflammation, Chronic/Active	-	3	-	2	2	-	3	-	-
Inflammation, Suppurative	3	-	3	-	-	-	-	-	-
Lymphocytic Infiltrates	-	-	2	-	-	-	-	-	-
Inflammation, Chronic	-	-	-	-	-	2	-	2	2
EYES									
	N								
Cataract	-	PI	PI	PI	PI	PI	-	PL	PI
Mineralization, NOS, Cornea	-	2	1	-	-	-	1	-	1
HARDERIAN GLAND									
	N		N	N	N		N	N	N
Lymphocytic Infiltrates	-	-	-	-	-	1	-	-	-
Inflammation, Chronic	-	2	-	-	-	-	-	-	-
NASAL									
				N	N		N	N	N

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	346	347	348	349	350	352	353	354	356
NASAL				N	N		N	N	N
Hyperplasia, Glandular	-	-	-	-	-	2	-	-	-
Hyperplasia, Epithelial	2	2	-	-	-	-	-	-	-
Fibrosis	-	-	-	-	-	3	-	-	-
Inflammation, Chronic/Active	-	-	2	-	-	-	-	-	-
Inflammation, Suppurative	3	4	-	-	-	4	-	-	-
FEMUR/BONE MARROW	N	N	N	N	N	N	N	N	N
SEMINAL VESICLES									
Atrophy, NOS	4	4	4	4	4	4	2	4	4
PROSTATE									
Hyperplasia, Epithelial	-	2	1	2	-	2	-	2	1
Inflammation, Chronic	-	-	-	-	-	1	-	-	-
Inflammation, Chronic/Active	-	-	-	-	1	-	-	2	1
Inflammation, Suppurative	2	3	-	4	-	-	1	-	-
Degeneration, Acinar	-	-	-	-	-	-	1	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

ANIMAL ID:	357
BRAIN	N
SCIATIC NERVE	N
SPINAL CORD	N
SALIVARY GLAND	N
PANCREAS	N
MANDIBULAR LYMPH NODE	
Plasmacytosis	3
ZYMBAL'S GLAND	N
PITUITARY	N
ADRENALS	N
THYROID	N
PARATHYROID	N
TRACHEA	N
ESOPHAGUS	N
THYMUS	
Atrophy, NOS	3
HEART	
Degeneration, Myocardial	2
Mineralization, NOS	2

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE

ANIMAL ID:

357

HEART

Inflammation, Chronic

2

AORTA

Mineralization, NOS

1

COLON

N

JEJUNUM

N

LIVER

Bile Duct Hyperplasia

3

Eosinophilic Focus, Multiple

P

Necrosis, Hepatocellular

1

Biliary Fibrosis

2

Inflammation, Chronic

2

SPLEEN

Fibrosis

1

Hyperplasia, Erythroid Cell

1

TONGUE

N

SKELETAL MUSCLE

N

LUNGS

Inflammation, Chronic/Active

3

Mineralization, NOS

2

KIDNEY

Chronic Progressive Nephropathy

4

Cytoplasmic Droplets

3

Mineralization, NOS, Medulla

2

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study STUDY NUMBER: 93-004  
FATE: ALL GROUP: 5  
DAYS ON TEST: ALL SEX: MALE

ANIMAL ID:	357
KIDNEY	
Pigmentation, NOS	3
URINARY BLADDER	N
STOMACH	N
DUODENUM	N
ILEUM	N
CECUM	N
RECTUM	N
MESENTERIC LYMPH NODE	
Plasmacytosis	2
TESTES	
Interstitial Cell Adenoma, Multiple	P
Degeneration, Seminiferous Tubule	4
EPIDIDYIMIDES	
Hypospermia	4
MAMMARY GLAND	N
SKIN	N
PREPUTIAL GLAND	
Degeneration, Acinar	2
Inflammation, Chronic	2

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE

ANIMAL ID:

357

EYES

Cataract

PI

Mineralization, NOS, Cornea

1

HARDERIAN GLAND

N

NASAL

Hyperplasia, Epithelial

2

Inflammation, Suppurative

3

FEMUR/BONE MARROW

N

SEMINAL VESICLES

Atrophy, NOS

4

ABDOMINAL CAVITY

Mesothelioma

P

PROSTATE

Inflammation, Chronic/Active

2

Degeneration, Acinar

2

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 6
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	391	392	393	395	398	399	400	402	403
BRAIN									
Hemorrhage	-	4	-	-	-	-	-	-	-
PANCREAS									
							N		
MANDIBULAR LYMPH NODE									
Plasmacytosis	-	-	-	-	-	-	2	-	-
Hemorrhage	-	-	-	-	-	-	2	-	-
PITUITARY									
Adenoma, Pars Distalis	-	-	-	P	-	-	-	-	P
LIVER									
Hyperplasia, Hepatocellular	-	-	-	4	-	-	-	-	-
Bile Duct Hyperplasia	3	3	2	3	3	2	3	2	3
Eosinophilic Focus	-	-	-	-	-	P	-	-	-
Eosinophilic Focus, Multiple	-	-	-	P	-	-	-	P	-
Basophilic Focus	-	-	-	P	P	-	-	-	-
Necrosis, Hepatocellular	-	2	-	-	-	-	1	-	-
Biliary Fibrosis	2	-	2	2	2	2	3	2	2
Inflammation, Chronic/Active	-	-	-	-	-	-	1	-	-
Inflammation, Chronic	2	-	-	-	-	1	-	-	-
Lymphocytic Infiltrates	-	4	-	-	-	-	-	-	-
Mineralization, NOS	-	2	-	-	-	-	-	-	-
SPLEEN									
				N		N			N
Mononuclear Cell Leukemia	-	P	-	-	-	-	-	-	-
Fibrosis	-	-	2	-	-	-	-	1	-
Hyperplasia, Erythroid Cell	2	-	-	-	1	-	2	-	-
LUNGS									
	N		U		N	N			
Inflammation, Chronic	-	-	-	-	-	-	2	-	-
Inflammation, Chronic/Active	-	-	-	-	-	-	-	1	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 6								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	391	392	393	395	398	399	400	402	403
LUNGS	N		U		N	N			
Lymphocytic Infiltrates	-	3	-	-	-	-	-	-	-
Mineralization, NOS	-	-	-	1	-	-	2	-	1
Hemorrhage	-	2	-	-	-	-	-	-	-
KIDNEY									
Hyperplasia, Epithelial, Tubular	-	-	-	-	-	-	2	-	-
Chronic Progressive Nephropathy	4	3	4	4	4	4	4	4	4
Cytoplasmic Droplets	2	-	1	3	2	-	-	2	2
Mineralization, NOS, Medulla	2	2	2	2	2	1	-	2	2
Pigmentation, NOS	2	-	1	2	2	-	-	2	2
STOMACH									
Hyperkeratosis, Forestomach	-	-	2	-	-	-	-	-	-
Ulceration, Forestomach	-	-	3	-	-	-	-	-	-
Inflammation, Chronic/Active, Forestomach	-	-	3	-	-	-	-	-	-
Inflammation, Chronic/Active, Glandular	-	-	3	-	-	-	-	-	-
Necrosis, Glandular	-	-	4	-	-	-	-	-	-
Hemorrhage, Glandular	-	-	3	-	-	-	-	-	-
TESTES									
Interstitial Cell Adenoma, Multiple	P	-	P	P	P	P	P	P	P
Degeneration, Seminiferous Tubule	4	-	4	4	4	4	4	4	4
SKIN									
Ulceration	-	-	-	-	4	-	-	-	-
Inflammation, Chronic/Active	-	-	-	-	4	-	-	-	-
PREPUTIAL GLAND									
Squamous Cell Carcinoma	-	-	-	-	P	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 6
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	404	405	406	407	408	410	411	413	414
-----									
BRAIN									
Hemorrhage	-	3	-	-	-	-	-	-	-
PANCREAS									
Acinar Cell Carcinoma	-	-	-	P	-	-	-	-	-
Polyarteritis	-	-	-	-	4	-	-	-	-
PITUITARY									
Carcinoma, Pars Distalis	-	-	-	-	-	-	P	-	-
Adenoma, Pars Distalis	P	P	P	-	-	-	-	-	-
LIVER									
Bile Duct Hyperplasia	2	3	3	2	2	2	2	2	2
Vacuolated Cell Focus	P	-	-	-	-	-	-	-	-
Eosinophilic Focus	-	-	P	P	-	P	-	-	-
Eosinophilic Focus, Multiple	-	-	-	-	-	-	-	P	-
Basophilic Focus	P	-	P	-	-	P	-	-	-
Basophilic Focus, Multiple	-	P	-	-	-	-	-	-	P
Altered Cell Focus	-	P	-	-	-	-	-	-	-
Vacuolization, Hepatocellular	-	-	-	-	-	-	2	-	-
Necrosis, Hepatocellular	-	-	-	1	-	-	-	-	1
Biliary Fibrosis	2	2	2	2	2	2	2	2	2
Inflammation, Chronic	-	-	-	-	2	-	2	-	2
SPLEEN									
Mononuclear Cell Leukemia	-	P	-	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	-	-	-	2	1	-	-	2	-
LUNGS									
Alveolar/Bronchiolar Hyperplasia	-	-	-	-	3	-	-	-	-
Inflammation, Chronic	-	-	1	-	-	-	-	2	-
Inflammation, Chronic/Active	-	2	-	-	-	-	-	-	-
Lymphocytic Infiltrates	-	3	-	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 6

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	404	405	406	407	408	410	411	413	414
LUNGS				N			N		N
Mineralization, NOS	1	-	-	-	1	1	-	2	-
Hemorrhage	-	3	-	-	-	-	-	-	-
KIDNEY									
Chronic Progressive Nephropathy	4	4	4	4	4	4	4	4	4
Cytoplasmic Droplets	3	-	2	-	2	2	-	2	2
Mineralization, NOS, Medulla	1	2	2	2	1	2	2	-	2
Pigmentation, NOS	2	-	2	-	2	2	2	2	2
TESTES									
Interstitial Cell Adenoma, Multiple	P	P	P	P	P	P	P	P	P
Degeneration, Seminiferous Tubule	4	4	4	4	4	4	4	4	4
PREPUTIAL GLAND									
Degeneration, Acinar	-	-	-	-	4	-	-	-	-
Hyperplasia, Epithelial	-	-	-	-	4	-	-	-	-
Inflammation, Suppurative	-	-	-	-	4	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 6								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	416	417	418	419	420	422	423	425	426
BRAIN									
Necrosis	-	-	4	-	-	-	-	-	-
Hemorrhage	-	-	4	-	-	-	-	-	-
PITUITARY									
Adenoma, Pars Distalis	P	-	-	-	-	-	P	-	P
Hyperplasia, NOS, Pars Distalis	-	-	-	-	-	-	-	3	-
Hematocyst, Pars Distalis	-	P	-	-	-	-	-	-	-
ADRENALS									
Pheochromocytoma	P	-	-	-	-	-	-	-	-
Vacuolization, Cytoplasmic, Cortical	-	-	3	-	-	-	-	-	-
Vacuolated Cell Focus	P	-	-	-	-	-	-	-	-
LIVER									
Hepatocellular Adenoma	-	-	-	-	-	-	-	-	P
Bile Duct Hyperplasia	2	2	4	2	3	3	3	2	2
Eosinophilic Focus	P	P	-	P	-	P	-	-	P
Eosinophilic Focus, Multiple	-	-	-	-	-	-	P	P	-
Basophilic Focus	-	-	-	-	-	-	-	-	P
Hepatodiaphragmatic Nodule	-	P	-	-	-	-	-	-	-
Vacuolization, Hepatocellular	1	-	-	-	-	-	3	2	-
Biliary Fibrosis	2	2	3	2	2	1	2	2	2
Inflammation, Chronic	2	1	-	2	3	-	-	2	-
Lymphocytic Infiltrates	-	-	4	-	-	-	-	-	-
Hemorrhage	-	-	-	3	-	-	-	-	-
SPLEEN									
Mononuclear Cell Leukemia	N	N		N	N	N		N	N
Hyperplasia, Erythroid Cell	-	-	P	-	-	-	-	-	-
	-	-	-	-	-	-	2	-	-
LUNGS									
Alveolar/Bronchiolar Adenoma	P	N	-	-	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 6								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	416	417	418	419	420	422	423	425	426
LUNGS	N								
Alveolar/Bronchiolar Hyperplasia	-	-	2	-	-	-	-	-	-
Inflammation, Chronic	-	-	-	-	1	-	2	-	-
Inflammation, Chronic/Active	4	-	4	-	-	-	-	3	-
Lymphocytic Infiltrates	-	-	4	-	-	-	-	-	-
Mineralization, NOS	-	-	-	2	-	1	1	-	2
KIDNEY									
Chronic Progressive Nephropathy	4	4	4	3	4	4	4	4	4
Cytoplasmic Droplets	2	2	2	2	2	2	2	-	3
Cyst, NOS	P	-	-	-	-	-	-	-	-
Mineralization, NOS, Medulla	-	1	2	-	2	2	-	-	2
Pigmentation, NOS	2	2	1	1	2	1	2	-	2
TESTES									
Interstitial Cell Adenoma, Multiple	P	P	P	P	P	P	P	P	P
Degeneration, Seminiferous Tubule	4	4	4	4	4	4	4	4	-
MESENTERY									
Lipoma	-	-	-	-	-	-	P	-	-
Inflammation, Chronic/Active, Fat	-	-	-	-	-	-	4	-	-
SEMINAL VESICLES									
Atrophy, NOS	-	-	-	-	-	-	-	4	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study						STUDY NUMBER: 93-004			
FATE: ALL						GROUP: 6			
DAYS ON TEST: ALL						SEX: MALE			
ANIMAL ID:	427	428	429	430	431	432	433	434	435
<b>BRAIN</b>									
Astrocytoma	-	-	-	-	-	-	P	-	-
<b>SALIVARY GLAND</b>									
Fibrosarcoma	-	-	-	-	-	-	P	-	-
<b>PITUITARY</b>									
Carcinoma, Pars Distalis	-	-	-	P	-	-	-	-	P
Adenoma, Pars Distalis	-	-	-	-	-	P	-	P	-
<b>LIVER</b>									
Bile Duct Hyperplasia	3	3	2	2	3	2	2	3	2
Vacuolated Cell Focus	-	-	P	-	-	-	-	-	-
Eosinophilic Focus	-	-	P	-	-	-	-	P	-
Eosinophilic Focus, Multiple	-	P	-	-	-	-	-	-	P
Basophilic Focus	-	-	-	-	-	-	P	-	-
Basophilic Focus, Multiple	-	-	-	-	P	-	-	-	-
Vacuolization, Hepatocellular	-	-	-	4	-	-	-	-	-
Biliary Fibrosis	2	2	1	2	2	2	1	2	2
Inflammation, Chronic/Active	1	-	-	-	-	-	-	-	-
Inflammation, Chronic	-	-	2	-	-	2	-	2	1
Lymphocytic Infiltrates	-	2	-	-	-	-	-	-	-
Mineralization, NOS	2	-	-	-	-	-	-	-	-
<b>SPLEEN</b>									
Mononuclear Cell Leukemia	-	P	-	-	-	-	-	-	-
Fibrosis	-	-	1	1	-	-	-	-	-
Hyperplasia, Lymphocytic	-	-	2	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	-	-	2	1	-	-	-	-	-
Pigmentation, NOS	-	-	-	-	-	2	-	-	-
<b>LUNGS</b>									
Inflammation, Chronic	-	-	1	-	-	-	-	1	1

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study						STUDY NUMBER: 93-004			
FATE: ALL						GROUP: 6			
DAYS ON TEST: ALL						SEX: MALE			
ANIMAL ID:	427	428	429	430	431	432	433	434	435
LUNGS	N			N	N		N		
Inflammation, Chronic/Active	-	-	-	-	-	3	-	-	-
Lymphocytic Infiltrates	-	1	-	-	-	-	-	-	-
Mineralization, NOS	-	2	-	-	-	-	-	-	2
KIDNEY									
Lipoma	-	-	-	-	-	-	P	-	-
Hyperplasia, Epithelial, Tubular	-	-	2	-	-	-	-	-	-
Chronic Progressive Nephropathy	4	4	4	4	4	4	4	4	4
Cytoplasmic Droplets	2	2	2	-	2	-	2	3	2
Mineralization, NOS, Medulla	2	2	2	-	2	3	-	2	2
Pigmentation, NOS	2	2	2	-	2	3	1	2	2
Inflammation, Suppurative	-	-	-	-	2	-	-	-	-
TESTES									
Interstitial Cell Adenoma, Multiple	-	P	P	-	P	-	P	P	-
Hyperplasia, Interstitial Cell	-	-	-	-	-	-	-	-	2
Degeneration, Seminiferous Tubule	-	4	4	-	4	4	4	4	2
MAMMARY GLAND									
Galactoceles	-	P	-	-	-	-	-	-	-
SKIN									
Ulceration	-	-	-	-	4	-	3	-	-
Inflammation, Chronic/Active	-	-	-	-	4	-	4	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study							STUDY NUMBER: 93-004		
FATE: ALL							GROUP: 7		
DAYS ON TEST: ALL							SEX: MALE		
ANIMAL ID:	465	466	467	468	469	470	471	472	473
<b>PITUITARY</b>									
Carcinoma, Pars Distalis	-	P	-	-	-	-	P	-	-
Adenoma, Pars Distalis	P	-	-	-	-	-	-	-	-
<b>ADRENALS</b>									
Vacuolization, Cytoplasmic, Cortical	-	-	-	-	-	2	-	-	4
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	4
<b>THYROID</b>									
C-Cell Carcinoma	-	-	-	-	-	-	P	-	-
<b>LIVER</b>									
Bile Duct Hyperplasia	2	2	3	2	2	-	3	2	4
Vacuolated Cell Focus	-	-	-	P	-	P	-	-	-
Eosinophilic Focus	P	-	-	-	P	-	-	P	-
Eosinophilic Focus, Multiple	-	-	-	P	-	-	-	-	-
Basophilic Focus, Multiple	-	-	-	P	-	-	-	P	-
Vacuolization, Hepatocellular	-	-	4	-	-	-	3	-	-
Necrosis, Hepatocellular	-	-	3	-	-	-	-	-	4
Biliary Fibrosis	2	2	3	2	2	-	2	2	-
Inflammation, Chronic	-	-	-	2	2	-	2	1	-
Lymphocytic Infiltrates	-	-	4	-	-	-	-	-	4
Mineralization, NOS	-	-	-	-	-	-	2	-	-
Hemorrhage	-	-	-	-	-	-	-	-	4
<b>SPLEEN</b>									
	N							N	
Mononuclear Cell Leukemia	-	-	P	-	-	-	-	-	P
Hyperplasia, Lymphocytic	-	-	-	-	2	-	-	-	-
Hyperplasia, Erythroid Cell	-	-	-	2	-	-	-	-	-
Pigmentation, NOS	-	1	-	-	-	4	1	-	-
<b>LUNGS</b>									
		N	U				N		
Inflammation, Chronic/Active	-	-	-	-	-	-	-	2	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 7				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	465	466	467	468	469	470	471	472	473
LUNGS		N	U				N		
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	4
Mineralization, NOS	2	-	-	2	2	2	-	1	2
Hemorrhage	-	-	-	-	-	-	-	-	2
KIDNEY									
Chronic Progressive Nephropathy	4	4	4	4	4	1	4	4	4
Cytoplasmic Droplets	1	-	-	-	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	4
Mineralization, NOS, Medulla	2	2	2	2	2	1	1	2	-
Pigmentation, NOS	2	-	4	-	-	-	-	-	-
Inflammation, Suppurative	-	-	-	-	-	-	-	2	-
TESTES									
Interstitial Cell Adenoma, Multiple	P	-	P	P	P	-	-	P	P
Degeneration, Seminiferous Tubule	4	-	4	4	4	-	-	4	4
SKIN									
Keratoacanthoma	P	-	-	-	-	-	-	-	-
Epidermal Inclusion Cyst	-	-	-	-	-	-	-	-	P
Ulceration	-	-	-	-	4	-	-	-	-
Inflammation, Chronic/Active	-	-	-	-	4	-	-	-	-
MESENTERY									
Inflammation, Chronic, Fat	-	-	-	-	4	-	-	-	-
Necrosis, Fat	-	-	-	-	4	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 7				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	474	475	476	478	479	480	481	482	483
BRAIN									
Hemorrhage	-	-	-	-	-	-	-	-	4
ZYMBAL'S GLAND									
Sebaceous Cell Adenocarcinoma	-	-	-	-	-	-	-	P	-
PITUITARY									
Carcinoma, Pars Distalis	-	-	-	-	-	-	P	-	-
Adenoma, Pars Distalis	P	-	-	-	-	-	-	-	P
ADRENALS									
Vacuolization, Cytoplasmic, Cortical	-	-	-	-	-	-	-	-	3
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	3
LIVER									
Bile Duct Hyperplasia	3	2	2	3	-	-	3	2	3
Eosinophilic Focus, Multiple	P	-	-	-	-	-	P	-	-
Basophilic Focus	P	-	P	-	-	-	-	-	-
Basophilic Focus, Multiple	-	-	-	-	-	-	P	-	-
Vacuolization, Hepatocellular	-	-	-	-	-	-	2	-	-
Necrosis, Hepatocellular	-	2	-	-	-	-	2	-	2
Biliary Fibrosis	3	2	2	3	-	-	3	2	3
Inflammation, Chronic	2	-	2	-	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	4	-	-	3	-	4
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	P	-	-	P	-	P
Fibrosis	1	-	2	-	-	-	-	-	-
Hyperplasia, Lymphocytic	3	2	2	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	1	-	-	-	-	-	-	2	-
Hyperplasia, Myeloid	-	-	2	-	-	-	-	-	-
LUNGS									
			N		A	A			

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 7								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	474	475	476	478	479	480	481	482	483
LUNGS			N		A	A			
Alveolar/Bronchiolar Carcinoma	-	-	-	P	-	-	-	-	-
Inflammation, Chronic	-	-	-	-	-	-	3	-	-
Inflammation, Chronic/Active	-	-	-	3	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	4	-	-	3	-	4
Mineralization, NOS	2	1	-	-	-	-	-	2	2
KIDNEY					A	A			
Chronic Progressive Nephropathy	4	4	4	4	-	-	4	4	3
Cytoplasmic Droplets	1	-	2	2	-	-	-	-	-
Mineralization, NOS, Medulla	2	-	1	2	-	-	-	2	-
Pigmentation, NOS	1	-	3	2	-	-	2	-	-
TESTES					A	A			
Interstitial Cell Adenoma, Multiple	P	P	P	P	-	-	-	P	-
Mesothelioma	-	-	P	-	-	-	-	-	-
Degeneration, Seminiferous Tubule	4	-	4	4	-	-	-	4	2
Lymphocytic Infiltrates	-	-	-	-	-	-	-	-	3
Hemorrhage	-	-	-	-	-	-	-	-	3
EPIDIDYIMIDES					A				
SKIN									
Ulceration	-	-	-	-	-	-	4	-	-
Inflammation, Chronic/Active	-	-	-	-	-	-	4	-	-
PREPUTIAL GLAND									
Adenocarcinoma	-	P	-	-	-	-	-	-	-
Inflammation, Suppurative	-	4	-	-	-	-	-	-	-
ABDOMINAL CAVITY									
Mesothelioma	-	-	P	-	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 7
DAYS ON TEST: ALL	SEX: MALE

ANIMAL ID:	484	485	486	487	491	492	493	494	495
<b>PITUITARY</b>									
Carcinoma, Pars Distalis	-	P	P	-	-	-	-	-	-
Adenoma, Pars Distalis	-	-	-	-	-	-	P	-	-
<b>LIVER</b>									
Bile Duct Hyperplasia	2	4	3	-	2	2	2	2	-
Eosinophilic Focus	-	-	-	-	-	P	-	-	-
Eosinophilic Focus, Multiple	-	P	-	-	P	-	P	-	-
Basophilic Focus	-	-	-	-	-	-	-	P	-
Basophilic Focus, Multiple	-	P	P	-	-	-	P	-	-
Vacuolization, Hepatocellular	-	2	2	-	-	-	-	-	-
Biliary Fibrosis	1	3	3	-	2	1	1	2	-
Inflammation, Chronic	-	-	2	-	-	2	-	-	-
<b>SPLEEN</b>									
Fibrosis	3	-	2	-	-	-	-	-	-
Hyperplasia, Lymphocytic	-	-	-	-	-	-	-	3	-
Hyperplasia, Erythroid Cell	-	-	-	-	2	-	-	3	-
Hyperplasia, Myeloid	-	-	-	-	-	-	-	4	-
Pigmentation, NOS	-	-	2	-	-	-	-	-	-
Inflammation, Suppurative	-	-	2	-	-	-	-	-	-
<b>LUNGS</b>									
Bronchiolar Epithelial Hyperplasia	3	-	-	-	-	-	-	-	-
Inflammation, Chronic/Active	4	-	-	-	-	-	-	-	-
Mineralization, NOS	-	-	2	-	1	2	1	1	-
Inflammation, Suppurative	-	-	2	-	-	-	-	-	-
<b>KIDNEY</b>									
Chronic Progressive Nephropathy	4	4	4	-	4	4	4	4	-
Mineralization, NOS, Medulla	-	-	-	-	3	2	2	2	-
<b>TESTES</b>									
				A					A

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	484	485	486	487	491	492	493	494	495
TESTES				A					A
Interstitial Cell Adenoma, Multiple	P	P	-	-	P	P	P	P	-
Hyperplasia, Interstitial Cell	-	-	2	-	-	-	-	-	-
Degeneration, Seminiferous Tubule	4	4	3	-	4	4	4	4	-
SKIN									
Sebaceous Cell Carcinoma	-	-	-	-	-	-	-	P	-
PREPUTIAL GLAND									
Adenocarcinoma	-	-	-	-	-	-	-	P	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 7
DAYS ON TEST: ALL	SEX: MALE

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ANIMAL ID:	496	499	500	501	502	503	505	506	507
-----									
PANCREAS									
Islet Cell Adenoma	-	P	-	-	-	-	-	-	-
Congestion	-	2	-	-	-	-	-	-	-
MANDIBULAR LYMPH NODE									
Plasmacytosis	3	-	-	-	-	-	-	-	-
PITUITARY									
Adenoma, Pars Distalis	-	-	-	P	-	-	P	P	-
HEART									
Thrombus	-	-	-	P	-	-	-	-	P
LIVER									
Bile Duct Hyperplasia	2	3	2	3	4	2	2	2	3
Eosinophilic Focus, Multiple	-	P	-	-	P	-	-	P	-
Basophilic Focus	-	-	P	-	-	-	-	-	-
Basophilic Focus, Multiple	P	-	-	-	-	-	-	-	-
Vacuolization, Hepatocellular	-	2	-	4	2	-	3	2	-
Hepatocytomegaly	-	-	-	3	-	-	-	-	-
Biliary Fibrosis	2	3	2	3	3	1	3	1	3
Inflammation, Chronic	-	1	-	-	-	-	-	2	-
Degeneration, Cystic	-	2	2	-	2	-	-	-	2
Lymphocytic Infiltrates	-	-	-	4	3	-	-	-	4
Congestion	-	-	-	-	-	-	3	-	-
SPLEEN									
Mononuclear Cell Leukemia	-	-	-	P	P	-	-	-	P
Fibrosis	-	2	-	-	-	-	-	-	-
Hyperplasia, Lymphocytic	-	-	3	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	-	1	4	-	-	-	2	-	-
Hyperplasia, Myeloid	-	-	4	-	-	-	-	-	-
Pigmentation, NOS	-	2	-	-	-	-	1	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	496	499	500	501	502	503	505	506	507
LUNGS		N							
Bronchiolar Epithelial Hyperplasia	-	-	-	-	-	3	-	-	-
Inflammation, Chronic	-	-	-	-	-	-	-	1	-
Inflammation, Chronic/Active	-	-	-	-	-	3	-	-	-
Lymphocytic Infiltrates	-	-	-	2	4	-	-	-	4
Mineralization, NOS	1	-	1	2	-	2	2	-	-
KIDNEY									
Chronic Progressive Nephropathy	4	4	4	4	4	4	4	4	4
Cytoplasmic Droplets	-	-	2	3	-	-	-	-	-
Vacuolization, Cytoplasmic	-	-	-	3	-	-	-	-	-
Mineralization, NOS, Medulla	-	2	2	-	2	2	2	-	2
Pigmentation, NOS	-	2	3	3	-	-	-	1	3
Inflammation, Suppurative	-	-	-	-	-	2	-	-	-
TESTES									
Interstitial Cell Adenoma, Multiple	P	P	P	P	P	P	P	P	P
Mesothelioma	-	-	P	-	-	-	-	-	-
Degeneration, Seminiferous Tubule	4	4	4	4	4	4	4	4	4
SKIN									
Lipoma	-	P	-	-	-	-	-	-	-
Ulceration	-	-	-	-	-	-	4	-	-
Inflammation, Chronic/Active	-	-	-	-	-	-	4	-	-
EYES									
Cataract	-	-	-	-	PL	-	-	-	-
ABDOMINAL CAVITY									
Mesothelioma	-	-	P	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	508	509	510
MANDIBULAR LYMPH NODE			
Plasmacytosis	-	-	3
Hemorrhage	-	-	2
PITUITARY			
Adenoma, Pars Distalis	P	-	-
LIVER			
Bile Duct Hyperplasia	2	3	2
Eosinophilic Focus, Multiple	-	-	P
Basophilic Focus, Multiple	P	-	-
Vacuolization, Hepatocellular	-	3	-
Necrosis, Hepatocellular	-	2	1
Biliary Fibrosis	2	3	2
Inflammation, Chronic	2	-	1
SPLEEN			
Fibrosis	-	4	-
Hyperplasia, Lymphocytic	1	-	3
Hyperplasia, Erythroid Cell	-	-	2
Pigmentation, NOS	-	3	-
LUNGS			
Mineralization, NOS	2	1	2
KIDNEY			
Chronic Progressive Nephropathy	4	4	4
Cytoplasmic Droplets	1	-	-
Mineralization, NOS, Medulla	-	2	-
Pigmentation, NOS	1	-	-
TESTES			
Interstitial Cell Adenoma, Multiple	P	P	P

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE

ANIMAL ID:

508

509

510

TESTES

Degeneration, Seminiferous Tubule

4

4

3

SKIN

Ulceration

4

-

4

Inflammation, Chronic/Active

4

-

4

See Reports Code Table for Symbol Definitions

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Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 8
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	541	542	543	544	545	546	547	548	549
BRAIN	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N		N	N	N	N
Fibrosarcoma	-	-	-	-	P	-	-	-	-
PANCREAS	N		N	N		N	N		
Islet Cell Adenoma	-	-	-	-	-	-	-	P	-
Hyperplasia, Islet Cell	-	-	-	-	2	-	-	-	-
Degeneration, Acinar	-	1	-	-	-	-	-	-	1
MANDIBULAR LYMPH NODE			N						
Plasmacytosis	3	2	-	3	2	2	3	3	3
Hemorrhage	2	3	-	-	-	-	-	-	-
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N
PITUITARY	N	N	N			N		N	
Adenoma, Pars Distalis	-	-	-	P	-	-	P	-	P
Cyst, NOS, Pars Distalis	-	-	-	-	P	-	-	-	-
ADRENALS			N	N	N	N	N		N
Pheochromocytoma	P	-	-	-	-	-	-	P	-
Degeneration, Cystic	-	2	-	-	-	-	-	-	-
THYROID		N	N	N	N	N	N	N	N
Hyperplasia, C-Cell	3	-	-	-	-	-	-	-	-
PARATHYROID	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 8				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	541	542	543	544	545	546	547	548	549
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS			U						
Atrophy, NOS	3	4	-	4	4	4	4	4	4
HEART			N						
Degeneration, Myocardial	2	2	-	3	2	2	3	2	2
Mineralization, NOS	2	2	-	2	3	2	2	2	2
Inflammation, Chronic	2	2	-	2	2	-	2	2	1
AORTA			N						
Mineralization, NOS	1	1	-	1	1	1	1	1	1
COLON	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N
LIVER									
Hepatocellular Carcinoma	-	-	-	-	-	P	-	-	-
Bile Duct Hyperplasia	3	2	-	3	2	3	3	3	3
Eosinophilic Focus	-	-	-	P	-	-	-	-	P
Eosinophilic Focus, Multiple	P	P	-	-	-	-	P	-	-
Basophilic Focus, Multiple	-	P	-	P	-	-	-	-	-
Necrosis, Hepatocellular	-	-	1	-	-	-	-	-	1
Biliary Fibrosis	2	2	-	2	1	2	2	3	2
Inflammation, Chronic	-	1	-	1	1	-	1	-	2
Degeneration, Cystic	-	-	-	2	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	2	-	4	-	3	-
SPLEEN		N	N				N		
Mononuclear Cell Leukemia	-	-	-	P	-	P	-	P	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study						STUDY NUMBER: 93-004			
FATE: ALL						GROUP: 8			
DAYS ON TEST: ALL						SEX: MALE			
ANIMAL ID:	541	542	543	544	545	546	547	548	549
SPLEEN		N	N				N		
Fibrosis	-	-	-	-	-	2	-	-	-
Cyst, Capsular, Multiple	-	-	-	-	P	-	-	-	-
Hyperplasia, Erythroid Cell	1	-	-	-	-	-	-	-	1
Pigmentation, NOS	-	-	-	-	1	-	-	-	-
TONGUE			N			N			
Mineralization, NOS	2	1	-	1	1	-	1	1	2
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N
LUNGS									
Bronchiolar Epithelial Hyperplasia	-	-	-	-	-	3	-	2	-
Inflammation, Chronic	-	-	1	-	-	-	1	-	-
Inflammation, Chronic/Active	-	-	-	-	1	4	-	3	3
Mineralization, NOS	1	2	1	1	-	-	-	2	-
KIDNEY									
Chronic Progressive Nephropathy	4	4	-	4	4	4	4	4	4
Cytoplasmic Droplets	-	-	-	-	-	-	2	-	-
Mineralization, NOS, Medulla	2	-	1	2	-	-	-	-	2
Pigmentation, NOS	-	2	-	-	-	2	2	2	-
Inflammation, Suppurative	-	-	-	-	-	-	-	-	2
URINARY BLADDER	N	N		N	N	N	N	N	N
Dilatation	-	-	4	-	-	-	-	-	-
STOMACH	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N	N

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 8				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	541	542	543	544	545	546	547	548	549
CECUM	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE									
Inflammation, Chronic	1	1	2	2	2	1	1	2	1
TESTES			N						
Interstitial Cell Adenoma, Multiple	P	P	-	P	P	P	P	P	P
Degeneration, Seminiferous Tubule	4	4	-	4	4	4	4	4	4
EPIDIDYMIDES			N						
Hypospermia	4	4	-	4	4	4	4	4	4
MAMMARY GLAND									
Fibroadenoma	-	-	-	P	-	-	-	-	-
Dilatation, Alveolar/Ductal	-	-	-	2	-	-	2	-	2
SKIN		N	N	N		N	N		N
Plasmacytosis, Lymph Node	-	-	-	-	4	-	-	-	-
Ulceration	-	-	-	-	-	-	-	4	-
Inflammation, Chronic/Active	-	-	-	-	-	-	-	4	-
Hematocyst	P	-	-	-	-	-	-	-	-
PREPUTIAL GLAND			N						
Degeneration, Acinar	3	2	-	2	2	3	1	2	3
Lymphocytic Infiltrates	2	2	-	2	2	-	2	2	-
Inflammation, Chronic	-	-	-	-	-	-	-	-	2
EYES			N						
Cataract	PI	-	-	PI	PI	PI	PI	PI	PI
Mineralization, NOS, Cornea	-	1	-	-	1	-	-	-	1

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 8								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	541	542	543	544	545	546	547	548	549
HARDERIAN GLAND	N	N	N	N	N	N	N	N	N
NASAL	N	N	N	N			N		
Hyperplasia, Epithelial	-	-	-	-	-	2	-	-	-
Inflammation, Suppurative	-	-	-	-	3	4	-	3	2
FEMUR/BONE MARROW	N	N	N		N	N	N	N	N
Hyperplasia, Erythroid Cell	-	-	-	2	-	-	-	-	-
SEMINAL VESICLES			N						
Atrophy, NOS	3	4	-	4	4	4	4	4	2
ABDOMINAL CAVITY									
Necrosis, Fat	-	-	-	-	4	-	-	-	-
Mineralization, NOS, Fat	-	-	-	-	4	-	-	-	-
Inflammation, Chronic	-	-	-	-	3	-	-	-	-
PROSTATE									
Hyperplasia, Epithelial	-	2	-	3	2	2	1	2	1
Inflammation, Chronic	-	-	1	-	-	-	-	-	1
Inflammation, Chronic/Active	1	-	-	2	1	2	1	1	-
Degeneration, Acinar	1	-	-	-	-	-	-	1	2

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(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 8				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	550	551	553	554	555	556	557	558	560
BRAIN	N	N	N	N	N	N	N		A
Astrocytoma	-	-	-	-	-	-	-	P	-
SCIATIC NERVE	N	N	N	N	N	N	N	N	A
SPINAL CORD	N	N	N	N	N	N	N	N	A
SALIVARY GLAND	N	N	N	N	N	N	N	N	A
PANCREAS	N			N	N	N	N	N	A
Degeneration, Acinar	-	1	1	-	-	-	-	-	-
MANDIBULAR LYMPH NODE								N	A
Plasmacytosis	3	3	3	3	3	3	2	-	-
Inflammation, Suppurative	-	-	-	-	-	2	-	-	-
Hemorrhage	-	-	2	-	-	-	-	-	-
Necrosis	-	-	-	-	4	-	-	-	-
ZYMBAL'S GLAND	N	N	N	N	N		N	N	A
Sebaceous Cell Adenoma	-	-	-	-	-	P	-	-	-
PITUITARY	N	N						N	A
Carcinoma, Pars Distalis	-	-	P	-	-	P	-	-	-
Cyst, NOS, Pars Distalis	-	-	-	-	P	-	P	-	-
Hyperplasia, NOS, Pars Distalis	-	-	-	2	-	-	P	-	-
ADRENALS	N	N	N	N			N	N	
Pheochromocytoma	-	-	-	-	-	-	-	-	P
Vacuolization, Cytoplasmic, Cortical	-	-	-	-	-	2	-	-	-
Lymphocytic Infiltrates	-	-	-	-	2	-	-	-	-
THYROID		N	N	N	N		N	N	
Carcinoma, NOS	-	-	-	-	-	-	-	-	P

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 8
DAYS ON TEST: ALL	SEX: MALE

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ANIMAL ID:	550	551	553	554	555	556	557	558	560
THYROID		N	N	N	N		N	N	
C-Cell Adenoma	P	-	-	-	-	-	-	-	-
Hyperplasia, C-Cell	-	-	-	-	-	1	-	-	-
PARATHYROID	N	N	N	N	N	N	N	N	A
TRACHEA	N	N	N	N	N	N	N	N	A
ESOPHAGUS	N	N	N	N	N	N	N		A
Hyperkeratosis	-	-	-	-	-	-	-	3	-
THYMUS		U		U				U	A
Mononuclear Cell Leukemia	-	-	-	-	P	-	-	-	-
Atrophy, NOS	4	-	4	-	4	4	4	-	-
HEART									A
Degeneration, Myocardial	1	1	2	2	1	2	3	2	-
Mineralization, NOS	2	2	2	1	2	2	2	1	-
Inflammation, Chronic	1	1	2	1	1	1	2	1	-
Inflammation, Suppurative	-	-	-	-	2	-	-	-	-
AORTA								N	A
Mineralization, NOS	1	1	1	1	1	1	1	-	-
COLON	N	N	N	N	N	N	N	N	A
JEJUNUM	N	N	N	N	N	N	N	N	A
LIVER									A
Bile Duct Hyperplasia	3	2	3	1	3	2	2	2	-
Eosinophilic Focus	-	-	P	-	-	-	-	-	-
Vacuolization, Hepatocellular	-	-	-	-	2	-	-	3	-
Necrosis, Hepatocellular	-	-	-	-	3	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 8				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	550	551	553	554	555	556	557	558	560
LIVER									A
Biliary Fibrosis	3	-	2	-	3	2	2	1	-
Inflammation, Chronic	1	1	-	-	-	-	1	1	-
Degeneration, Cystic	-	-	-	-	-	-	3	-	-
Lymphocytic Infiltrates	-	-	-	-	4	4	-	-	-
SPLEEN								N	A
Mononuclear Cell Leukemia	-	-	-	-	P	P	-	-	-
Fibrosis	1	2	-	-	-	-	-	-	-
Hyperplasia, Lymphocytic	-	-	2	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	1	-	-	4	-	-	2	-	-
Hyperplasia, Myeloid	-	-	-	4	-	-	-	-	-
TONGUE	N								A
Mineralization, NOS	-	1	2	3	2	1	1	1	-
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	A
LUNGS								U	A
Bronchiolar Epithelial Hyperplasia	-	3	-	-	-	3	-	-	-
Inflammation, Chronic/Active	-	3	2	-	-	4	-	-	-
Lymphocytic Infiltrates	-	-	-	-	3	-	-	-	-
Mineralization, NOS	1	-	-	1	-	-	2	-	-
KIDNEY									A
Chronic Progressive Nephropathy	4	4	4	2	4	4	4	3	-
Mineralization, NOS, Medulla	1	1	1	1	-	2	2	-	-
Pigmentation, NOS	-	-	2	-	4	2	2	-	-
URINARY BLADDER	N	N		N	N	N	N	N	A
Urolith	-	-	P	-	-	-	-	-	-
STOMACH	N	N	N	N			N		A

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 8				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	550	551	553	554	555	556	557	558	560
STOMACH	N	N	N	N			N		A
Hyperkeratosis, Forestomach	-	-	-	-	-	-	-	3	-
Pigmentation, NOS, Glandular	-	-	-	-	4	4	-	-	-
DUODENUM	N	N	N	N	N	N	N	N	A
ILEUM	N	N	N	N	N	N	N	N	A
CECUM	N	N	N	N	N	N	N	N	A
RECTUM	N	N	N	N	N	N	N	N	A
MESENTERIC LYMPH NODE									A
Inflammation, Chronic	2	2	1	1	1	2	2	1	-
TESTES									
Interstitial Cell Adenoma	-	-	-	P	-	P	-	-	-
Interstitial Cell Adenoma, Multiple	P	P	-	-	P	-	P	-	P
Hyperplasia, Interstitial Cell	-	-	-	2	-	-	-	2	-
Degeneration, Seminiferous Tubule	4	4	2	3	4	2	4	-	-
EPIDIDYMIDES			N			N		N	A
Hypospermia	4	4	-	4	4	-	4	-	-
MAMMARY GLAND	N	N		N			N	N	A
Galactoceles, Multiple	-	-	-	-	-	P	-	-	-
Dilatation, Alveolar/Ductal	-	-	2	-	1	3	-	-	-
Inflammation, Suppurative	-	-	2	-	-	-	-	-	-
SKIN	N	N	N	N	N		N	N	A
Fibroma	-	-	-	-	-	P	-	-	-
Keratoacanthoma	-	-	-	-	-	P	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 8				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	550	551	553	554	555	556	557	558	560
PREPUTIAL GLAND									A
Degeneration, Acinar	3	2	3	3	3	3	3	1	-
Necrosis	-	-	-	-	2	-	-	-	-
Inflammation, Chronic/Active	2	-	-	2	-	-	-	-	-
Inflammation, Suppurative	-	-	-	-	-	3	3	1	-
Lymphocytic Infiltrates	-	-	2	-	-	-	-	-	-
Inflammation, Chronic	-	2	-	-	1	-	-	-	-
EYES			N						A
Cataract	PI	PI	-	-	-	-	-	-	-
Mineralization, NOS, Cornea	-	1	-	2	1	1	1	2	-
HARDERIAN GLAND	N	N	N	N		N		N	A
Lymphocytic Infiltrates	-	-	-	-	1	-	1	-	-
NASAL	N			N					A
Hyperplasia, Epithelial	-	-	-	-	3	-	-	-	-
Inflammation, Suppurative	-	3	3	-	4	3	2	1	-
FEMUR/BONE MARROW	N	N	N	N		N	N	N	A
Mononuclear Cell Leukemia	-	-	-	-	P	-	-	-	-
SEMINAL VESICLES				N				N	A
Atrophy, NOS	4	4	2	-	4	4	4	-	-
Dilatation, Lumen	-	-	3	-	-	-	-	-	-
ABDOMINAL CAVITY									
Hemangioma	-	-	-	P	-	-	-	-	-
Necrosis	-	-	-	4	-	-	-	-	-
Necrosis, Fat	-	4	-	-	-	-	-	-	-
Mineralization, NOS, Fat	-	4	-	-	-	-	-	-	-
Inflammation, Chronic	-	3	-	-	-	-	-	-	-
Inflammation, Suppurative	-	-	-	4	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study STUDY NUMBER: 93-004  
FATE: ALL GROUP: 8  
DAYS ON TEST: ALL SEX: MALE

ANIMAL ID:	550	551	553	554	555	556	557	558	560
PROSTATE								N	A
Hyperplasia, Epithelial	1	-	-	2	-	-	2	-	-
Inflammation, Chronic/Active	1	2	-	-	2	1	-	-	-
Inflammation, Suppurative	-	-	2	2	-	-	-	-	-
Degeneration, Acinar	-	2	-	-	2	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
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STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 8
DAYS ON TEST: ALL	SEX: MALE

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ANIMAL ID:	561	562	564	565	566	567	568	569	570
BRAIN	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N
PANCREAS	N	N			N	N		N	
Hyperplasia, Islet Cell	-	-	2	-	-	-	-	-	-
Degeneration, Acinar	-	-	3	1	-	-	3	-	2
Inflammation, Chronic	-	-	2	-	-	-	2	-	2
MANDIBULAR LYMPH NODE		U			N		N		
Plasmacytosis	3	-	2	3	-	3	-	2	2
Hyperplasia, Lymphocytic	-	-	-	-	-	3	-	-	-
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N
PITUITARY		N		N	N	N		U	
Adenoma, Pars Distalis	P	-	-	-	-	-	-	-	-
Hyperplasia, NOS, Pars Distalis	-	-	2	-	-	-	2	-	1
Hematocyst	P	-	-	-	-	-	-	-	-
ADRENALS	N	N		N					N
Pheochromocytoma, Malignant	-	-	-	-	-	-	-	P	-
Pheochromocytoma	-	-	P	-	-	-	-	-	-
Hyperplasia, NOS, Medulla	-	-	-	-	2	2	4	-	-
THYROID				N	N		N	N	N
Follicular Cell Carcinoma	-	P	-	-	-	-	-	-	-
Follicular Cell Adenoma	P	-	-	-	-	-	-	-	-
Hyperplasia, C-Cell	-	-	2	-	-	2	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
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STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 8								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	561	562	564	565	566	567	568	569	570
PARATHYROID	N	N	N	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N
THYMUS								U	
Atrophy, NOS	4	4	4	4	4	4	4	-	4
HEART									
Degeneration, Myocardial	3	3	2	3	-	3	2	3	3
Mineralization, NOS	3	2	2	2	2	2	2	2	2
Inflammation, Chronic	2	2	1	2	-	2	1	1	3
AORTA	N		N		N		N		
Mineralization, NOS	-	2	-	1	-	1	-	1	1
COLON	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N
LIVER									
Bile Duct Hyperplasia	3	3	3	2	3	2	4	2	2
Eosinophilic Focus	P	-	P	-	-	-	-	-	-
Eosinophilic Focus, Multiple	-	-	-	-	-	-	P	-	P
Basophilic Focus, Multiple	-	-	-	-	-	-	-	-	P
Vacuolization, Hepatocellular	-	-	-	-	3	2	-	-	-
Necrosis, Hepatocellular	-	-	-	-	3	-	-	1	1
Hepatocytomegaly	-	-	-	-	2	-	-	-	-
Biliary Fibrosis	2	3	2	2	3	2	3	2	2
Inflammation, Chronic	-	1	1	-	-	-	-	-	2
Degeneration, Cystic	-	-	-	-	-	-	3	-	-
Lymphocytic Infiltrates	-	-	3	3	4	-	3	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study					STUDY NUMBER: 93-004				
FATE: ALL					GROUP: 8				
DAYS ON TEST: ALL					SEX: MALE				
ANIMAL ID:	561	562	564	565	566	567	568	569	570
LIVER									
Hemorrhage	-	-	-	-	4	-	-	-	-
SPLEEN									
Mononuclear Cell Leukemia	-	-	P	P	P	-	P	-	-
Fibrosis	-	-	2	2	-	-	-	2	2
Hyperplasia, Lymphocytic	-	-	-	-	-	2	-	-	-
Hyperplasia, Erythroid Cell	1	1	-	-	-	2	-	-	-
Pigmentation, NOS	-	-	-	-	-	-	-	3	-
TONGUE									
Mineralization, NOS	1	1	2	1	3	2	2	2	3
SKELETAL MUSCLE									
Mineralization, NOS	N	N	N	N		N	N	N	N
	-	-	-	-	2	-	-	-	-
LUNGS									
	N	N				N			
Bronchiolar Epithelial Hyperplasia	-	-	-	-	-	-	-	-	2
Inflammation, Chronic/Active	-	-	-	-	3	-	-	-	4
Lymphocytic Infiltrates	-	-	3	3	4	-	3	-	-
Mineralization, NOS	-	-	-	-	-	-	-	1	2
KIDNEY									
Chronic Progressive Nephropathy	4	4	4	4	4	4	4	4	4
Cytoplasmic Droplets	-	-	-	-	1	-	-	-	-
Mineralization, NOS, Medulla	1	2	2	-	-	-	1	3	-
Pigmentation, NOS	-	2	-	-	4	-	-	-	-
Inflammation, Suppurative	-	-	-	-	-	2	-	3	-
URINARY BLADDER									
	N	N	N	N	N	N	N		N
Hyperplasia, Epithelial	-	-	-	-	-	-	-	4	-
Inflammation, Suppurative	-	-	-	-	-	-	-	3	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004								
FATE: ALL	GROUP: 8								
DAYS ON TEST: ALL	SEX: MALE								
ANIMAL ID:	561	562	564	565	566	567	568	569	570
STOMACH	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N	N
CECUM	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N							N	
Mononuclear Cell Leukemia	-	-	-	-	P	-	-	-	-
Inflammation, Chronic	-	1	2	2	-	2	1	-	1
TESTES									
Interstitial Cell Adenoma, Multiple	P	P	P	P	P	P	P	-	P
Hyperplasia, Interstitial Cell	-	-	-	-	-	-	-	3	-
Degeneration, Seminiferous Tubule	4	4	4	4	4	4	4	3	4
EPIDIDYMIDES								N	
Hypospermia	4	4	4	4	4	4	4	-	4
MAMMARY GLAND	N					N	N	U	N
Fibroadenoma	-	-	-	P	-	-	-	-	-
Dilatation, Alveolar/Ductal	-	4	1	-	1	-	-	-	-
SKIN	N				N	N	N	N	N
Fibroma	-	P	-	P	-	-	-	-	-
Ulceration	-	-	4	-	-	-	-	-	-
Inflammation, Chronic/Active	-	-	4	-	-	-	-	-	-
PREPUTIAL GLAND							N		
Adenoma	-	-	-	P	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 8
DAYS ON TEST: ALL	SEX: MALE

ANIMAL ID:	561	562	564	565	566	567	568	569	570
PREPUTIAL GLAND							N		
Degeneration, Acinar	3	3	2	2	3	2	-	2	2
Inflammation, Suppurative	4	-	-	-	4	-	-	-	-
Lymphocytic Infiltrates	-	2	2	1	-	1	-	-	2
EYES		N							
Cataract	-	-	PI	PI	-	PI	PI	-	-
Mineralization, NOS, Cornea	1	-	-	1	1	-	2	1	1
HARDERIAN GLAND	N	N	N	N		N	N	N	N
Degeneration, Acinar	-	-	-	-	2	-	-	-	-
NASAL	N	N		N	N		N	N	
Inflammation, Suppurative	-	-	4	-	-	3	-	-	1
FEMUR/BONE MARROW		N	N			N	N		N
Hyperplasia, Megakaryocytic	-	-	-	3	-	-	-	-	-
Hyperplasia, Myeloid	2	-	-	-	2	-	-	2	-
PERIPANCREATIC TISSUE									
Necrosis, NOS, Fat	-	-	2	-	-	-	-	-	-
Inflammation, Chronic, Fat	-	-	3	-	-	-	-	-	-
SEMINAL VESICLES									
Atrophy, NOS	4	4	3	4	4	4	4	3	4
ABDOMINAL CAVITY									
Necrosis, Fat	-	-	-	-	-	4	-	-	-
Inflammation, Chronic, Fat	-	-	-	-	-	3	-	-	-
PROSTATE									
Hyperplasia, Epithelial	2	2	1	1	1	2	2	-	1
Inflammation, Chronic	-	-	-	1	-	-	-	-	-

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE

ANIMAL ID:	561	562	564	565	566	567	568	569	570
PROSTATE									
Inflammation, Chronic/Active	-	2	2	-	2	-	-	-	1
Inflammation, Suppurative	3	-	-	-	-	2	2	4	-
Degeneration, Acinar	-	-	2	3	1	1	2	-	-

See Reports Code Table for Symbol Definitions

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 27  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

SKIN - Subcutaneous, Mass, 5x5x1 mm, Irregular, Firm,  
Dark Red

Related Histopathology:

SKIN - Hemorrhage, Muscle

UTERUS - Left, Mass, 30x15x7 mm, Fluid Filled, Clear,  
Dark Red

UTERUS - Endometrial Stromal Polyp

PANCREAS - Mass, 5x10x4 mm, Irregular, Firm, Tan

MESENTERY - Inflammation, Chronic; MESENTERY -  
Mineralization, NOS; MESENTERY - Necrosis, Fat;  
MESENTERY - Hemorrhage

PITUITARY - Mass, 4x5x1 mm, Irregular, Soft, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 28  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

PITUITARY - Mass, 2x2 mm, Round, Red

Related Histopathology:

PITUITARY - Adenoma, Pars Distalis

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

Animal ID: 29  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

KIDNEY - Bilateral, Discoloration, Dark Brown

Related Histopathology:

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

PITUITARY - Mass, 4x2 mm, Oval, Black

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 30  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

SKIN - Subcutaneous, Right Jaw, Mass, 15x12x10 mm,  
Irregular, White

Related Histopathology:

ZYMBAL'S GLAND - Sebaceous Cell Adenoma

UTERUS - Right, Discoloration, Thickened Wall,  
Brownish, Found at trimming

UTERUS - Endometrial Stromal Polyp

Animal ID: 31  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

LIVER - Median Lobe, Focus, 5mm in diameter, Round,  
Red

Related Histopathology:

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Biliary Fibrosis; LIVER -  
Inflammation, Chronic; LIVER - Congestion

UTERUS - Left Horn, Mass, 22x13x8 mm, Irregular, Soft,  
Pink

UTERUS - Endometrial Stromal Polyp

Animal ID: 32  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

SKIN - Subcutaneous, Masses, Irregular, Firm, Tan,  
Under Left Front Leg, 34x28x17 mm, Under Left Rear  
Leg, 19x15x7 mm

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 33  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

CLITORAL GLAND - Right, Mass, 20x12x10 mm, Irregular,  
Firm, Black/Tan

Related Histopathology:

CLITORAL GLAND - Adenocarcinoma

SKIN - Subcutaneous, Clitoral Gland, Mass, 35x15x6 mm,  
Irregular, Soft, Yellow

SKIN - Lipoma

Animal ID: 34  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

LUNGS - Foci, 1mm in diameter, >5, Round, Black

Related Histopathology:

LUNGS - Inflammation, Chronic; LUNGS - Mineralization,  
NOS

Animal ID: 35  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

SPLEEN - Enlarged, 42x14x10 mm

Related Histopathology:

SPLEEN - Mononuclear Cell Leukemia

UTERUS - Right, Mass, 12x7x5 mm, Soft, Tan, Red

UTERUS - Endometrial Stromal Polyp

PITUITARY - Mass, 2x2x1 mm, Soft, Dark Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 36  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

LIVER - Median Lobe, Mass, 4x4x0.5 mm, Irregular,  
Raised, Firm, Dark Red

Related Histopathology:

LIVER - Hepatocellular Adenoma

Animal ID: 37  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

MANDIBULAR LYMPH NODE - Discoloration, Red

Related Histopathology:

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Inflammation, Chronic; MANDIBULAR  
LYMPH NODE - Hemorrhage

Animal ID: 38  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

SKIN - Subcutaneous, Mass, 80x60x20 mm, Irregular,  
Firm, White

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

MANDIBULAR LYMPH NODE - Discolored, Red

MANDIBULAR LYMPH NODE - Hemorrhage

UTERUS - Body, Mass, 7x5x3 mm, White

UTERUS - Cystic Endometrial Glandular Hyperplasia

Animal ID: 39  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

OVARIES - Right, Cyst, 10x5x12 mm, Irregular, Fluid  
Filled, Clear

Related Histopathology:

OVARIES - Cyst, NOS

UTERUS - Right, Mass, Irregular, Firm, Dark Red

UTERUS - Endometrial Adenocarcinoma

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 39  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

LUNGS - Foci, Pinpoint, >5, Round, Black

LUNGS - Mineralization, NOS

Animal ID: 40  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 6x5x2 mm, Irregular, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 41  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

LUNGS - Foci, <1mm in diameter, >5, Round, Black

LUNGS - Inflammation, Chronic; LUNGS - Mineralization,  
NOS

PITUITARY - Mass, 5x6x4 mm, Irregular, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 42  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

LIVER - All Lobes, Mottled, Severe

LIVER - Bile Duct Hyperplasia; LIVER - Necrosis,  
Hepatocellular; LIVER - Inflammation, Chronic;  
LIVER - Lymphocytic Infiltrates

LIVER - Right Lobe, Enlarged, 35x27x9 mm, Mass,  
24x22x8 mm, Irregular, Firm, Tan

LIVER - Lymphocytic Infiltrates

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 42  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

LIVER - Accessory Lobe, Mass, 10x8x6 mm, Irregular,  
Firm, Tan

LIVER - Lymphocytic Infiltrates

UTERUS - Enlarged, 40x10x8 mm

UTERUS - Endometrial Glandular Hyperplasia

SPLEEN - Enlarged, 53x15x9 mm

SPLEEN - Mononuclear Cell Leukemia; SPLEEN -  
Hyperplasia, Erythroid Cell; SPLEEN - Pigmentation,  
NOS; SPLEEN - Inflammation, Chronic

MESENTERY - Focus, 15x12x11 mm, Irregular, Firm,  
Tan-Red

MESENTERY - Fibroadenoma; MESENTERY - Inflammation,  
Chronic/Active; MESENTERY - Lymphocytic Infiltrates

PITUITARY - Focus, 3x1x1 mm, Irregular, Firm, Red

PITUITARY - Hyperplasia, NOS, Pars Distalis

Animal ID: 43  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 478

Reference to Necropsy Record:

Related Histopathology:

SKIN - Ulceration, 50x35x3 mm, Irregular, Tan

SKIN - Abscess

Animal ID: 44  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

LIVER - Left Lobe, Focus, 2mm in diameter, Round,  
White

LIVER - Basophilic Focus; LIVER - Vacuolization,  
Hepatocellular

ADRENALS - Left, Mass, 5x3x2 mm, Irregular, Firm,  
Tan-Red

ADRENALS - Adenoma, Cortical

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 44  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

SKIN - Left Hind Leg, Mass, 17x13x4 mm, Ulcerated,  
Irregular, Firm, Tan

SKIN - Keratoacanthoma

Animal ID: 45  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Right Shoulder area, Mass,  
25x22x10 mm, Irregular, Soft, Tan

MAMMARY GLAND - Fibroadenoma

Animal ID: 47  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

LUNGS - Foci, <1mm in diameter, >5, Round, Black

LUNGS - Inflammation, Chronic; LUNGS - Mineralization,  
NOS

Animal ID: 48  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Focus, 2mm in diameter, Round, Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 50

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

PANCREAS - Foci, 0.5 to 2mm in diameter, >2, Firm,  
Red

PANCREAS - Degeneration, Acinar; PANCREAS -  
Inflammation, Chronic

MANDIBULAR LYMPH NODE - Discolored, Red

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Hemorrhage

Animal ID: 51

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

CLITORAL GLAND - Abscess, 12x10x3 mm, Irregular, Hard,  
Yellow

CLITORAL GLAND - Adenocarcinoma; CLITORAL GLAND -  
Inflammation, Suppurative

Animal ID: 52

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Body, Mass, 13x10x20 mm, Irregular, Soft,  
Dark Red

UTERUS - Endometrial Stromal Polyp

KIDNEY - Pitted, Mild

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

LIVER - All Lobes, Mottled, Moderate

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Inflammation, Chronic

PITUITARY - Mass, 6x8x4 mm, Irregular, Soft, Dark Red

PITUITARY - Carcinoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 53  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 629

Reference to Necropsy Record:

CLITORAL GLAND - Mass, 57x45x20 mm, Irregular, Firm,  
Tan

Related Histopathology:

CLITORAL GLAND - Adenocarcinoma

SPLEEN - Enlarged, 45x12x12 mm, Found at trimming

SPLEEN - Hyperplasia, Erythroid Cell; SPLEEN -  
Hyperplasia, Myeloid

Animal ID: 54  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 668

Reference to Necropsy Record:

PITUITARY - Mass, 10x8x8 mm, Round, Soft, Red

Related Histopathology:

PITUITARY - Carcinoma, Pars Distalis

Animal ID: 55  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

LUNGS - Foci, <1mm in diameter, >5, Round, Black

Related Histopathology:

LUNGS - Mineralization, NOS

UTERUS - Bilateral, Enlarged, Moderate

UTERUS - Dilatation, Lumen

Animal ID: 56  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

SPLEEN - Enlarged, 58x18x8 mm

Related Histopathology:

SPLEEN - Mononuclear Cell Leukemia

SKIN - Subcutaneous, Right Hip area, Mass, 45x32x8 mm,  
Irregular, Firm, Tan

SKIN - Mononuclear Cell Leukemia

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 57  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
PITUITARY - Focus, 1mm in diameter, Round, Red

Related Histopathology:  
PITUITARY - Adenoma, Pars Distalis

Animal ID: 61  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:  
KIDNEY - Bilateral, Discoloration, Dark Brown

Related Histopathology:  
KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

Animal ID: 62  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
UTERUS - Left Horn, Mass, 15x11x5 mm, Irregular, Soft,  
Red

Related Histopathology:  
UTERUS - Endometrial Stromal Polyp

PITUITARY - Mass, 5x4x3 mm, Irregular, Firm, Black

PITUITARY - Adenoma, Pars Distalis

Animal ID: 63  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
LIVER - Median Lobe, Focus, 3mm in diameter, Round,  
Red

Related Histopathology:  
LIVER - Congestion

CERVIX - Mass, 8x6x4 mm, Irregular, Firm, Red

CERVIX - Endometrial Stromal Polyp

LIVER - Median Lobe, Foci, 1mm in diameter, 2, Round,  
White

LIVER - Biliary Fibrosis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 63  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Left Abdomen, Mass, 11x9x4 mm,  
Irregular, Firm, Tan

MAMMARY GLAND - Fibroadenoma

THYROID - Right, Enlarged, 6x5x3 mm

PARATHYROID - Adenoma

Animal ID: 64  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

PANCREAS - Foci, 0.5 to 2mm in diameter, Multiple,  
Firm, Red

PANCREAS - Degeneration, Acinar; PANCREAS -  
Inflammation, Chronic

Animal ID: 65  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Thrombus; KIDNEY -  
Mineralization, NOS, Medulla; KIDNEY - Pigmentation,  
NOS

Animal ID: 66  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 692

Reference to Necropsy Record:

Related Histopathology:

ORAL CAVITY - Mass, 20x8x2 mm, Irregular, Firm, Tan,  
Found at trimming

ORAL CAVITY - Squamous Cell Papilloma

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

Animal ID: 69  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

CLITORAL GLAND - Enlarged

CLITORAL GLAND - No Corollary change detected

OVARIES - Left, Cyst, 10x6x4 mm

OVARIES - Cyst, Parovarian

PITUITARY - Mass, 4x3 mm, Dark Red

PITUITARY - Adenoma, Pars Distalis

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

Animal ID: 70  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

PANCREAS - Foci, 0.5 to 1mm in diameter, >2, Red

PANCREAS - Degeneration, Acinar; PANCREAS -  
Inflammation, Chronic

PITUITARY - Mass, 2x2x0.5 mm, Irregular, Soft, Dark  
Red

PITUITARY - Adenoma, Pars Distalis

UTERUS - Bilateral, Enlarged, 4x4x20 mm

UTERUS - Cystic Endometrial Glandular Hyperplasia

Animal ID: 71  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

CLITORAL GLAND - Enlarged, Moderate

CLITORAL GLAND - Inflammation, Suppurative; CLITORAL  
GLAND - Dilatation, Ductal

UTERUS - Bilateral, Dilatation, Moderate

UTERUS - Dilatation, Lumen

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 72

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

KIDNEY - Bilateral, Discoloration, Dark Brown

Related Histopathology:

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

UTERUS - Mass, 7x2x3 mm, Irregular, Firm, Red

UTERUS - Endometrial Stromal Polyp

KIDNEY - Left, Focus, 5x3x3 mm, Round, White, Found  
at trimming

KIDNEY - Lipoma

Animal ID: 73

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

LIVER - Median Lobe, Mass, 2mm in diameter, Round,  
Soft, Red

Related Histopathology:

LIVER - Diaphragmatic Nodule

Animal ID: 74

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

CLITORAL GLAND - Right, Enlarged, 11x4x4 mm,  
Irregular, Tan

Related Histopathology:

CLITORAL GLAND - Fibrosis; CLITORAL GLAND -  
Degeneration, Acinar

PITUITARY - Mass, 5x5x4 mm, Irregular, Red

PITUITARY - Adenoma, Pars Distalis

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

ADRENALS - Bilateral, Enlarged, Found at trimming

ADRENALS - Vacuolization, Cytoplasmic, Cortical

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 75

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

MANDIBULAR LYMPH NODE - Foci, 1mm in diameter, >5,  
Round, Red

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Hemorrhage

THYMUS - Decreased in size, 9x5x1 mm

THYMUS - Atrophy, NOS

KIDNEY - Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 104  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

OVARIES - Left, Cyst, 17x9x8 mm, Irregular, Soft,  
Clear

Related Histopathology:

OVARIES - Cyst, Parovarian

LUNGS - All Lobes, Foci, Pinpoint, >5, Round, Black

LUNGS - Mineralization, NOS

Animal ID: 105  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

LUNGS - All Lobes, Foci, Pinpoint, >5, Round, Black

Related Histopathology:

LUNGS - Congestion

CLITORAL GLAND - Right, Mass, 12x10x7 mm, Irregular,  
Firm, Tan

CLITORAL GLAND - Squamous Cell Papilloma; CLITORAL  
GLAND - Inflammation, Suppurative

UTERUS - Right Horn, Mass, 14x10x7 mm, Irregular,  
Soft, Red

UTERUS - Endometrial Stromal Polyp

PITUITARY - Mass, 2x1x1 mm, Irregular, Firm, Red

PITUITARY - Hyperplasia, NOS, Pars Distalis

Animal ID: 107  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

OVARIES - Left, Enlarged, 7x7x4 mm

Related Histopathology:

OVARIES - Thecoma

UTERUS - Left, Enlarged, 18x6x6 mm

UTERUS - Endometrial Stromal Polyp

KIDNEY - Bilateral, Discolored, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 107  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

LIVER - All Lobes, Mottled

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Biliary Fibrosis; LIVER -  
Inflammation, Chronic

SKIN - Subcutaneous, Right Shoulder, Mass, 32x24x28  
mm, Hard, Dark Red

MAMMARY GLAND - Adenocarcinoma

Animal ID: 108  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Mass, 23x24x12 mm, Pus Filled,  
Soft, Brown

MAMMARY GLAND - Adenoma

SKIN - Subcutaneous, Rectal area, Mass, 20x15x10 mm,  
Soft, Brown

MAMMARY GLAND - Fibroadenoma

Animal ID: 109  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

MANDIBULAR LYMPH NODE - Enlarged, 7x5x4 mm, 10x6x5 mm,  
2, Oval, Firm, Red

MANDIBULAR LYMPH NODE - Mononuclear Cell Leukemia

SKIN - Subcutaneous, Right Jaw, Mass, 20x15x12 mm,  
Round, Firm, Tan

SKIN - Epidermal Inclusion Cyst

LIVER - Median Lobe, Focus, 3mm in diameter, Round,  
Tan

LIVER - Bile Duct Hyperplasia; LIVER - Lymphocytic  
Infiltrates

SPLEEN - Enlarged, 55x17x10 mm

SPLEEN - Mononuclear Cell Leukemia

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 109

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

MESENTERIC LYMPH NODE - Enlarged, 14x10x8 mm,  
Irregular, Firm, Red

MESENTERIC LYMPH NODE - Mononuclear Cell Leukemia

KIDNEY - Bilateral, Mottled, Severe

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Lymphocytic  
Infiltrates; KIDNEY - Mineralization, NOS, Medulla;  
KIDNEY - Pigmentation, NOS

SKIN - Subcutaneous, Left Hind Leg, Mass, 40x30x15 mm,  
Irregular, Soft, Puss filled, Tan

MAMMARY GLAND - Fibroadenoma

SKIN - Subcutaneous, Right Hind Leg, Mass, 45x40x15  
mm, Irregular, Firm, Tan

MAMMARY GLAND - Fibroadenoma

Animal ID: 111

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

CLITORAL GLAND - Mass, 30x18x20 mm, Hard, Dark

CLITORAL GLAND - Adenocarcinoma

SPLEEN - Enlarged, 63x20x9 mm

SPLEEN - Mononuclear Cell Leukemia

OVARIES - Left, Cyst, 6x6x5 mm, Clear

OVARIES - Cyst, Parovarian

LIVER - All Lobes, Enlarged, Mottled

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Lymphocytic Infiltrates

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 112  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 619

Reference to Necropsy Record:

CLITORAL GLAND - Mass, 9x4x3 mm, Irregular, Firm,  
Black

Related Histopathology:

CLITORAL GLAND - Adenoma

SPLEEN - Enlarged, 85x20x10 mm

SPLEEN - Mononuclear Cell Leukemia

EYES - Right, Cataract

EYES - Cataract

PITUITARY - Discolored, Red, Found at trimming

PITUITARY - Cyst, NOS, Pars Distalis

Animal ID: 114  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 701

Reference to Necropsy Record:

PITUITARY - Mass, 10x8x8 mm, Irregular, Soft, Red,  
Found at trimming

Related Histopathology:

PITUITARY - Autolysis

Animal ID: 115  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

PITUITARY - Mass, 5x4x2 mm, Irregular, Soft, Red

Related Histopathology:

PITUITARY - No Corollary change detected

Animal ID: 116  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 372

Reference to Necropsy Record:

PANCREAS - Mass, 11x8x4 mm, Irregular, Red

Related Histopathology:

PERIPANCREATIC TISSUE - Histiocytic Sarcoma, Lymph  
Node; PERIPANCREATIC TISSUE - Hemorrhage, Lymph  
Node; PERIPANCREATIC TISSUE - Necrosis, Lymph Node

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 116  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 372

Reference to Necropsy Record:

Related Histopathology:

ADRENALS - Enlarged, 6x6x4 mm, 2

ADRENALS - Vacuolization, Cytoplasmic, Cortical

SPLEEN - Enlarged, 85x27x15 mm

SPLEEN - Histiocytic Sarcoma

Animal ID: 117  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Under Left Front Leg, Mass,  
48x43x22 mm, Irregular, Firm, Tan

MAMMARY GLAND - Fibroadenoma

Animal ID: 120  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

MESENTERIC LYMPH NODE - Enlarged, Moderate, Fluid  
filled

MESENTERIC LYMPH NODE - Mononuclear Cell Leukemia

SPLEEN - Enlarged, 50x14x8 mm

SPLEEN - Mononuclear Cell Leukemia

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 121  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:  
MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Inflammation, Chronic; MANDIBULAR  
LYMPH NODE - Hemorrhage

Animal ID: 122  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
PITUITARY - Mass, 5x4x3 mm, Irregular, Soft, Red

Related Histopathology:  
PITUITARY - Adenoma, Pars Distalis

Animal ID: 123  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 629

Reference to Necropsy Record:  
SPLEEN - Enlarged, 90x20x15 mm

Related Histopathology:  
SPLEEN - Mononuclear Cell Leukemia

PITUITARY - Mass, 2x2x3 mm, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 124  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
PITUITARY - Mass, 5x4x2 mm, Soft, Red

Related Histopathology:  
PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 125  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

LIVER - Right Lobe, Focus, 2mm in diameter, Round,  
Red

Related Histopathology:

LIVER - Hyperplasia, Hepatocellular

LUNGS - All Lobes, Foci, Pinpoint, >5, Round, Black

LUNGS - Mineralization, NOS

Animal ID: 126  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

HEART - Focus, 2mm in diameter, Round, White

Related Histopathology:

HEART - Schwannoma

ADRENALS - Foci, 1 to 2mm in diameter, >3, Round,  
White

ADRENALS - Hyperplasia, NOS, Cortical

Animal ID: 128  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

OVARIES - Left, Cyst, 15x10x5 mm, Irregular, Fluid  
filled, Clear

Related Histopathology:

OVARIES - Cyst, Parovarian

PANCREAS - Foci, 0.5 to 2 mm in diameter, Multiple,  
Firm, Red

PERIPANCREATIC TISSUE - Congestion, Lymph Node;  
PERIPANCREATIC TISSUE - Pigmentation, NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 129  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

PITUITARY - Mass, 5mm in diameter, Irregular, Red

Related Histopathology:

PITUITARY - Adenoma, Pars Distalis

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

Animal ID: 130  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

LUNGS - All Lobes, Foci, Pinpoint, >5, Round, Black

Related Histopathology:

LUNGS - Inflammation, Chronic

LIVER - Median Lobes, Cyst, 7x6x9 mm, Irregular, Firm,  
Clear

LIVER - Eosinophilic Focus; LIVER - Degeneration,  
Cystic

KIDNEY - Bilateral, Discolored, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

PITUITARY - Mass, 4x2x2 mm, Irregular, Firm, Black

PITUITARY - Adenoma, Pars Distalis

Animal ID: 131  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

THYMUS - Decreased in size, 13x12x2 mm, Brown

Related Histopathology:

THYMUS - Atrophy, NOS

LUNGS - Foci, <1 to 3mm in diameter, >5, Round, Red/  
Black

LUNGS - Osteosarcoma, Metastatic

URINARY BLADDER - Dilated, 35x30x20 mm

URINARY BLADDER - No Corollary change detected

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 131  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Right, Enlarged, 50x20x15 mm, Irregular, Red

UTERUS - Hemorrhage

PELVIS/SPINE - Mass, 50x35x35 mm, Irregular, Hard,  
Tan

PELVIS/SPINE - Osteosarcoma

Animal ID: 132  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

SPLEEN - Enlarged, 60x19x12 mm

SPLEEN - Mononuclear Cell Leukemia

Animal ID: 133  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 567

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 12x10x8 mm, Irregular, Firm, Dark  
Red

PITUITARY - Carcinoma, Pars Distalis

Animal ID: 134  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Right Horn, Mass, 17x7x6 mm, Irregular, Soft,  
Red

UTERUS - Endometrial Stromal Polyp

PITUITARY - Mass, 3x2x1 mm, Irregular, Firm, Black

PITUITARY - Hyperplasia, NOS, Pars Distalis

PITUITARY - Foci, Pinpoint, 2, Round, Black

PITUITARY - Hyperplasia, NOS, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 134  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

LUNGS - All Lobes, Foci, Pinpoint, >5, Round, Black

LUNGS - Inflammation, Chronic; LUNGS - Mineralization,  
NOS

Animal ID: 135  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

ADRENALS - Right, Enlarged, 5mm in diameter

ADRENALS - Pheochromocytoma

PITUITARY - Mass, 5x4x2 mm, Irregular, Dark Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 137  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

LIVER - Median Lobe, Nodule, 6x5x6 mm, Irregular,  
Firm, Brown

LIVER - Diaphragmatic Nodule

SKIN - Subcutaneous, Right Hind Leg, Mass, 19x11x5 mm,  
Irregular, Firm, Tan

MAMMARY GLAND - Fibroadenoma

UTERUS - Left Horn, Mass, 19x10x7 mm, Irregular, Firm,  
Tan-Red

UTERUS - Endometrial Stromal Polyp

SKIN - Left Hind Foot, Ulceration, 15x12x2 mm,  
Irregular, Firm, Black

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active;  
SKIN - Hemorrhage

PITUITARY - Mass, 8x5x3 mm, Irregular, Firm, Red

PITUITARY - Carcinoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 138

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

PITUITARY - Mass, 4mm in diameter, Round, Red

Related Histopathology:

PITUITARY - Adenoma, Pars Distalis

Animal ID: 139

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

SKIN - Subcutaneous, Abdominal, Mass, 50x41x22 mm,  
Irregular, Firm, Cream filled, Red

Related Histopathology:

MAMMARY GLAND - Galactoceles; MAMMARY GLAND - Necrosis;  
MAMMARY GLAND - Inflammation, Suppurative

CLITORAL GLAND - Left, Mass, 10x8x4 mm

CLITORAL GLAND - Adenocarcinoma

PITUITARY - Mass, 7mm in diameter, Round, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 140

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

ADRENALS - Left, Decreased in size, 3x2x2 mm,  
Irregular, Soft, Dark Brown

Related Histopathology:

ADRENALS - Atrophy, NOS

Animal ID: 142

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 580

Reference to Necropsy Record:

LIVER - Discoloration, Pale

Related Histopathology:

LIVER - Vacuolization, Hepatocellular

KIDNEY - Discoloration, Black

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -

Cytoplasmic Droplets; KIDNEY - Vacuolization,  
Cytoplasmic; KIDNEY - Mineralization, NOS, Medulla;  
KIDNEY - Pigmentation, NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 143  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:  
PITUITARY - Mass, 3x2mm, Irregular, Red

Related Histopathology:  
PITUITARY - Adenoma, Pars Distalis

Animal ID: 144  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
CLITORAL GLAND - Mass, 15x19x7 mm, Soft, Tan, Red

Related Histopathology:  
CLITORAL GLAND - Adenocarcinoma

OVARIES - Left, Cyst, 20x15x10 mm, Fluid filled,  
Clear

OVARIES - Cyst, Parovarian

PITUITARY - Mass, 6x4x5 mm, Soft, Dark Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 145  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:  
UTERUS - Left, Mass, 18x16x26 mm, Dark and Clear

Related Histopathology:  
UTERUS - Endometrial Stromal Polyp

SKIN - Right Rear Foot, Sore, 5mm in diameter, Red  
and Dark Red

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active;  
SKIN - Hemorrhage

KIDNEY - Bilateral, Discolored, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

PITUITARY - Mass, 5x4x2 mm, Dark Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 146

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

LIVER - Foci, 1 to 2mm in diameter, >5, Round, White

Related Histopathology:

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Necrosis, Hepatocellular;  
LIVER - Inflammation, Chronic; LIVER - Lymphocytic  
Infiltrates

Animal ID: 147

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

SPLEEN - Enlarged, 80x25x6 mm

Related Histopathology:

SPLEEN - Mononuclear Cell Leukemia

SPLEEN - Focus, 7mm in diameter, Round (concave),  
Firm, Tan

SPLEEN - Fibrosis

SPLEEN - Focus, 4mm in diameter, Round (concave),  
Firm, Tan

SPLEEN - Fibrosis

SPLEEN - Focus, 2mm in diameter, Round, Firm, Grey

SPLEEN - Fibrosis

KIDNEY - Bilateral, Discolored, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

BRAIN - Mass, 7x5x2 mm, Irregular, Soft, Pink

BRAIN - Granular Cell Tumor

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

Animal ID: 148  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

SKIN - Subcutaneous, Abdominal, Mass, 25x20x6 mm,  
Irregular, Soft, Tan

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

SKIN - Subcutaneous, Abdominal, Mass, 45x40x15 mm,  
Irregular, Firm, White

MAMMARY GLAND - Fibroadenoma

LIVER - Median Lobe, Focus, 2x3 mm, Irregular, Red

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Biliary Fibrosis

Animal ID: 149  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

SKIN - Subcutaneous, Left Hip (clitoral), Mass,  
115x80x20 mm, Firm, Red and Tan

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

MANDIBULAR LYMPH NODE - Discolored, Red

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Hemorrhage

Animal ID: 150  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

LIVER - Left Lobe, Focus, 1mm in diameter, Round,  
Brown

Related Histopathology:

LIVER - Basophilic Focus

CLITORAL GLAND - Right, Mass, 8x5x5 mm, Irregular,  
Firm, Tan

CLITORAL GLAND - Adenoma

SKIN - Subcutaneous, Rear Leg, Mass, 32x30x7 mm,  
Irregular, Soft, Tan

MAMMARY GLAND - Fibroadenoma

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 150

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 3x2x2 mm, Round, Firm, Black

PITUITARY - Cyst, NOS, Pars Distalis; PITUITARY -  
Hyperplasia, NOS, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE

Animal ID: 180  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
PITUITARY - Mass, 6x5x4 mm, Irregular, Soft, Red

Related Histopathology:  
PITUITARY - Adenoma, Pars Distalis

Animal ID: 181  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
CLITORAL GLAND - Bilateral, Abscess, Mild

Related Histopathology:  
CLITORAL GLAND - Degeneration, Acinar; CLITORAL GLAND  
- Dilatation, Ductal; CLITORAL GLAND - Inflammation,  
Chronic

Animal ID: 182  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
UTERUS - Right Horn, Enlarged, 35x16x16 mm, Irregular,  
Red

Related Histopathology:  
UTERUS - Endometrial Stromal Polyp

Animal ID: 183  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 640

Reference to Necropsy Record:  
SKIN - Subcutaneous, Jaw, Mass, 45x20x30 mm,  
Irregular, Firm, Red

Related Histopathology:  
SKIN - Squamous Cell Carcinoma

SKIN - Right Rear Leg, Mass, 15x12x10 mm, Irregular,  
Firm, Tan

SKIN - Sarcoma, NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 184

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Enlarged, (Right) 35x10x10 mm,  
(Left) 30x9x6 mm

UTERUS - Dilatation, Lumen

LIVER - Left, Focus, 2x1 mm, Irregular, Red

LIVER - Eosinophilic Focus

LIVER - Left, Focus, 1mm in diameter, Round, White

LIVER - Vacuolated Cell Focus

UTERUS - Left, Mass, 8x4x3 mm, Round, Red

UTERUS - Endometrial Stromal Polyp

Animal ID: 185

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 527

Reference to Necropsy Record:

Related Histopathology:

SKIN - Mass, 68x50x30 mm, Irregular, Soft, Tan

MAMMARY GLAND - Adenocarcinoma

Animal ID: 186

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Left Hip, Mass, 35x25x10 mm,  
Filled thick fluid, Tan

MAMMARY GLAND - Fibroadenoma

PITUITARY - Mass, 4x5x1 mm, Soft, Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE

Animal ID: 187  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

SKIN - Subcutaneous, Under Left Front Leg, Mass,  
55x48x30 mm, Irregular, Firm, Tan

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

LIVER - Enlarged, Mild

LIVER - Basophilic Focus, Multiple; LIVER -  
Inflammation, Chronic

PITUITARY - Mass, 7mm in diameter, Round, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 188  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 449

Reference to Necropsy Record:

SPLEEN - Decreased in size, 20x4x3 mm, Found in  
trimming

Related Histopathology:

SPLEEN - Pigmentation, NOS

Animal ID: 191  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 638

Reference to Necropsy Record:

SKIN - Subcutaneous, Under Left Rear Leg, Mass,  
45x40x28 mm, Irregular, Tan

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

SPLEEN - Enlarged, 55x15x10 mm

SPLEEN - Mononuclear Cell Leukemia

LIVER - Mottled, Tan and Red

LIVER - Bile Duct Hyperplasia; LIVER - Necrosis,  
Hepatocellular; LIVER - Hepatocytomegaly; LIVER -  
Biliary Fibrosis; LIVER - Pigmentation, NOS; LIVER  
- Inflammation, Chronic/Active; LIVER - Lymphocytic  
Infiltrate

PITUITARY - Mass, 2x2 mm, Round, Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 192

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Left, Mass, 30x15x12 mm, Irregular, Soft,  
Red

UTERUS - Endometrial Stromal Polyp

PITUITARY - Mass, 2x3x1 mm, Irregular, Soft, Dark Red

PITUITARY - Carcinoma, Pars Distalis

Animal ID: 193

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

LIVER - Mottled

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Basophilic Focus, Multiple;  
LIVER - Biliary Fibrosis; LIVER - Inflammation,  
Chronic; LIVER - Lymphocytic Infiltrates

UTERUS - Enlarged, Mild

UTERUS - Endometrial Glandular Hyperplasia

SPLEEN - Enlarged, 53x14x6 mm

SPLEEN - Mononuclear Cell Leukemia

Animal ID: 194

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

OVARIES - Right, Cyst, 20x10x15 mm, Irregular, Clear

OVARIES - Cyst, Parovarian

PITUITARY - Mass, 7x6x5 mm, Irregular, Soft, Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE

Animal ID: 195  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 534

Reference to Necropsy Record:  
SPLEEN - Enlarged, 80x22x18 mm

Related Histopathology:  
SPLEEN - Mononuclear Cell Leukemia

Animal ID: 196  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:  
KIDNEY - Bilateral, Pitted, Mild

Related Histopathology:  
KIDNEY - Chronic Progressive Nephropathy; KIDNEY - Mineralization, NOS, Medulla

PITUITARY - Mass, 3x3x3 mm, Round, Dark Red

PITUITARY - Adenoma, Pars Distalis; PITUITARY - Adenoma, Pars Intermedia

Animal ID: 197  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 598

Reference to Necropsy Record:  
CLITORAL GLAND - Mass, 80x50x40 mm, Irregular, Firm, Red

Related Histopathology:  
CLITORAL GLAND - Adenocarcinoma

SPLEEN - Enlarged, 50x18x10 mm

SPLEEN - Mononuclear Cell Leukemia

PITUITARY - Mass, 4x3x2 mm, Irregular, Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 198

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

LIVER - Median Lobe, Nodules, 5mm in diameter, 2,  
Round, Firm, Red

LIVER - Diaphragmatic Nodule

PITUITARY - Mass, 3x1 mm, Irregular, Dark Red

PITUITARY - Hyperplasia, NOS, Pars Distalis

Animal ID: 199

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 4x5x2 mm, Irregular, Red

PITUITARY - Adenoma, Pars Distalis

LIVER - Left, Mass, 5mm in diameter, Round, Soft,  
White

LIVER - Hepatocellular Adenoma

Animal ID: 200

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 527

Reference to Necropsy Record:

Related Histopathology:

MAMMARY GLAND - Mass, 80x45x40 mm, Irregular, Firm,  
Tan

MAMMARY GLAND - Fibroadenoma

Animal ID: 201

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Left Horn, Mass, 7x5x15 mm, Irregular, Soft,  
Dark Red

UTERUS - Endometrial Stromal Polyp

LIVER - Right Lobe, Focus, 2x2 mm, Slightly raised,  
Dark Red

LIVER - Hepatocellular Adenoma

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE

Animal ID: 202  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 498

Reference to Necropsy Record:  
SPLEEN - Enlarged, 65x18x10 mm

Related Histopathology:  
SPLEEN - Mononuclear Cell Leukemia

LIVER - Mottled, Tan and Red

LIVER - Bile Duct Hyperplasia; LIVER - Vacuolization,  
Hepatocellular; LIVER - Necrosis, Hepatocellular;  
LIVER - Hepatocytomegaly; LIVER - Lymphocytic  
Infiltrates

Animal ID: 203  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:  
LIVER - Left Lobe, Mass, 4x4x3 mm, Irregular, Firm,  
Dark Red

Related Histopathology:  
LIVER - Hepatocellular Adenoma

PITUITARY - Mass, 5mm in diameter, Round, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 204  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 717

Reference to Necropsy Record:  
SKIN - Subcutaneous, Under Left Front Leg, Mass,  
40x38x20 mm, Oval, Soft, Tan

Related Histopathology:  
MAMMARY GLAND - Fibroadenoma

PITUITARY - Mass, 11x9x5 mm, Irregular, Red

PITUITARY - Carcinoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 205

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 703

Reference to Necropsy Record:

Related Histopathology:

CLITORAL GLAND - Mass, 65x60x30 mm, Irregular, Firm,  
Red-Tan

CLITORAL GLAND - Adenoma

Animal ID: 206

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 680

Reference to Necropsy Record:

Related Histopathology:

SPLEEN - Enlarged, 70x12x8 mm

SPLEEN - Mononuclear Cell Leukemia

PITUITARY - Mass, 10mm in diameter, Round, Firm,  
Black

PITUITARY - Carcinoma, Pars Distalis

SPLEEN - Mass, 8x6x5 mm, Irregular, Firm, White,  
Found at trimming

SPLEEN - Fibrosarcoma

Animal ID: 207

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 4x5x1 mm, Soft, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 208

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

LIVER - Median Lobe, Focus, 2mm in diameter, Round,  
Brown

LIVER - Basophilic Focus, Multiple

PITUITARY - Focus, 2x1 mm, Irregular, Black

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE

Animal ID: 209  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Clitoral area, Mass, 57x45x30 mm,  
Irregular, Firm, Red

MAMMARY GLAND - Adenocarcinoma

SKIN - Subcutaneous, Mass, 30x27x15 mm, Irregular,  
Soft, White

MAMMARY GLAND - Fibroadenoma

OVARIES - Right, Cyst, 10x8x5 mm, Irregular, Clear

OVARIES - Cyst, Parovarian

UTERUS - Mass, 8x5x4 mm

UTERUS - Endometrial Stromal Polyp

Animal ID: 211

Animal Fate: Terminal Sacrifice

Pathologist: GRO

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Head/Ear, Masses, 6 to 12mm in  
diameter, >5, Irregular, Soft, Tan

MAMMARY GLAND - Galactoceles, Multiple

MANDIBULAR LYMPH NODE - Foci, 1 to 5mm in diameter,  
>5, Round, Red

MANDIBULAR LYMPH NODE - Mononuclear Cell Leukemia;  
MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Hemorrhage

SKIN - Subcutaneous, Below Ear, Mass, 15x10x7 mm,  
Irregular, Soft, Tan

ZYMBAL'S GLAND - Sebaceous Cell Adenoma

LUNGS - Discoloration, Light Pink-Tan

LUNGS - Lymphocytic Infiltrates; LUNGS -  
Mineralization, NOS

SPLEEN - Enlarged, 64x18x17 mm

SPLEEN - Mononuclear Cell Leukemia

MESENTERIC LYMPH NODE - Discoloration, >5, Red

MESENTERIC LYMPH NODE - Mononuclear Cell Leukemia;  
MESENTERIC LYMPH NODE - Hemorrhage

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 211

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

LIVER - All Lobes, Discoloration, Mottled, Right Lobe, Enlarged

LIVER - Bile Duct Hyperplasia; LIVER - Vacuolization, Hepatocellular; LIVER - Necrosis, Hepatocellular; LIVER - Hepatocytomegaly; LIVER - Biliary Fibrosis; LIVER - Lymphocytic Infiltrates

PITUITARY - Mass, 6x6x3 mm, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 212

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Abdominal, Left Rear Leg, Mass, 48x40x30 mm, Irregular, Firm and Pus filled, Tan

MAMMARY GLAND - Fibroadenoma

LIVER - All Lobes, Mottled, Tan and Red

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic Focus, Multiple; LIVER - Biliary Fibrosis; LIVER - Inflammation, Chronic; LIVER - Lymphocytic Infiltrates

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY - Mineralization, NOS, Medulla; KIDNEY - Pigmentation, NOS

PITUITARY - Mass, 5mm in diameter, Round, Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE

Animal ID: 213  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

CLITORAL GLAND - Mass, 13x12x7 mm, Irregular, Firm,  
Red

Related Histopathology:

CLITORAL GLAND - Adenoma

PITUITARY - Focus, 3mm in diameter, Round, Red

PITUITARY - Hyperplasia, NOS, Pars Distalis

THYROID - Left, Enlarged, 3x1x1 mm

THYROID - C-Cell Adenoma

Animal ID: 214  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

LIVER - Left Lobe, Focus, 1mm in diameter, Round,  
White

Related Histopathology:

LIVER - Vacuolated Cell Focus; LIVER - Basophilic  
Focus, Multiple; LIVER - Biliary Fibrosis; LIVER -  
Inflammation, Chronic

PITUITARY - Mass, 3mm in diameter, Round, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 215  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 419

Reference to Necropsy Record:

SPLEEN - Enlarged, 65x12x7 mm, Irregular, Red

Related Histopathology:

SPLEEN - Mononuclear Cell Leukemia

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE

Animal ID: 216  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

SKIN - Subcutaneous, Right Shoulder, Mass, 75x40x60  
mm, Firm, Red and Tan

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

SPLEEN - Enlarged, 75x25x10 mm

SPLEEN - Mononuclear Cell Leukemia

UTERUS - Mass, 1x10 mm, >2, Soft, Dark Red, Tan

UTERUS - Mononuclear Cell Leukemia

ADRENALS - Enlarged

ADRENALS - Degeneration, Cystic

PANCREAS - Mass, 10x5x4 mm, Firm, Red, Tan

PERIPANCREATIC TISSUE - Mineralization, NOS, Fat;  
PERIPANCREATIC TISSUE - Necrosis, NOS, Fat

STOMACH - Granular, Foci, 1 to 5mm in diameter, >5,  
Red; Enlarged, Thickened, Severe

STOMACH - Mononuclear Cell Leukemia

LIVER - Mottled, Moderate

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Necrosis, Hepatocellular;  
LIVER - Biliary Fibrosis; LIVER - Lymphocytic  
Infiltrates

MANDIBULAR LYMPH NODE - Discolored, Red

MANDIBULAR LYMPH NODE - Mononuclear Cell Leukemia;  
MANDIBULAR LYMPH NODE - Hemorrhage

Animal ID: 218  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 598

Reference to Necropsy Record:

SPLEEN - Enlarged, 73x20x12 mm

Related Histopathology:

SPLEEN - Mononuclear Cell Leukemia

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 219

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

CLITORAL GLAND - Right, Mass, 11x6x3 mm

CLITORAL GLAND - Adenoma

SPLEEN - Enlarged, 44x14x7 mm

SPLEEN - Hyperplasia, Erythroid Cell

LIVER - Median Lobe, Focus, 2mm in diameter, Round,  
Tan

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Necrosis, Hepatocellular;  
LIVER - Biliary Fibrosis

PITUITARY - Mass, 9mm in diameter, Round, Dark Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 220

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Right Shoulder, Mass, 40x20x30  
mm, Fluid filled, Soft, Tan, White

MAMMARY GLAND - Fibroadenoma

OVARIES - Left, Mass, 20x10x15 mm, Firm, Tan, Red

OVARIES - Granulosa Cell Tumor, Malignant

UTERUS - Left, Mass, 6x5x2 mm, Soft, Tan

UTERUS - Cystic Endometrial Glands; UTERUS - Fibrosis,  
Stromal

LIVER - Mottled, Mild

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus; LIVER - Biliary Fibrosis; LIVER -  
Inflammation, Chronic

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 3  
SEX: FEMALE

Animal ID: 221  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 640

Reference to Necropsy Record:  
UTERUS - Prolapsed

Related Histopathology:  
UTERUS - Inflammation, Chronic/Active; UTERUS -  
Necrosis; UTERUS - Hemorrhage

LIVER - All Lobes, Mottled, Found at trimming

LIVER - Bile Duct Hyperplasia; LIVER - Necrosis,  
Hepatocellular; LIVER - Hepatocytomegaly; LIVER -  
Biliary Fibrosis; LIVER - Lymphocytic Infiltrates

Animal ID: 222  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
SPLEEN - Enlarged, 55x18x9 mm

Related Histopathology:  
SPLEEN - Mononuclear Cell Leukemia

UTERUS - Left Horn, Mass, 29x19x14 mm, Irregular,  
Firm, Tan

UTERUS - Leiomyosarcoma

LIVER - Median Lobe, Focus, 2mm in diameter, Round,  
White

LIVER - Necrosis, Hepatocellular; LIVER - Biliary  
Fibrosis; LIVER - Lymphocytic Infiltrates; LIVER -  
Bile Duct Hyperplasia; LIVER - Basophilic Focus,  
Multiple

Animal ID: 223  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
SKIN - Subcutaneous, Over Salivary Gland, Mass,  
25x16x5 mm, Irregular, Soft, White

Related Histopathology:  
MAMMARY GLAND - Fibroadenoma

PITUITARY - Mass, 6x4x3 mm, Irregular, Soft, Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE

Animal ID: 255  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

PANCREAS - Foci, 0.5 to 2mm in diameter, Multiple,  
Firm, Red

Related Histopathology:

PERIPANCREATIC TISSUE - Inflammation, Chronic, Lymph  
Node; PERIPANCREATIC TISSUE - Congestion, Lymph  
Node; PERIPANCREATIC TISSUE - Pigmentation, NOS

LIVER - Median Lobe, Focus, 5x5x1 mm, Irregular, Firm,  
Tan

LIVER - Basophilic Focus, Multiple; LIVER -  
Vacuolization, Hepatocellular; LIVER -  
Hepatocytomegaly; LIVER - Inflammation, Chronic

UTERUS - Left, Cyst, 2x3x3 mm, Fluid filled, Clear,  
Found at trimming

UTERUS - Cystic Endometrial Glands

Animal ID: 256  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

SKIN - Right Oral Cavity, Mass, 4x4x3 mm, Irregular,  
Soft, Tan

Related Histopathology:

SKIN - Abscess

PITUITARY - Mass, 4x4x1 mm, Irregular, Soft, Dark Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 257  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:

PITUITARY - Focus, 1mm in diameter, Round, Red

Related Histopathology:

PITUITARY - Hyperplasia, NOS, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 258

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Rectal, Ventral, Herniation

SKIN - No Microscopic Observation

ADRENALS - Bilateral, Foci, 1 to 2mm in diameter, 1-3,  
Round, Red

ADRENALS - Hyperplasia, NOS, Cortical

UTERUS - Enlarged, Moderate

UTERUS - Cystic Endometrial Glandular Hyperplasia

UTERUS - Bilateral, Mass, 4x4x4 mm, 2, Firm, Brown,  
Found at trimming

UTERUS - Endometrial Stromal Polyp

Animal ID: 259

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 604

Reference to Necropsy Record:

Related Histopathology:

SPLEEN - Enlarged, 75x20x11 mm

SPLEEN - Mononuclear Cell Leukemia

LUNGS - All Lobes, Discolored, Severe, Irregular, Red

LUNGS - Alveolar/Bronchiolar Hyperplasia; LUNGS -  
Inflammation, Chronic/Active; LUNGS - Lymphocytic  
Infiltrates; LUNGS - Hemorrhage; LUNGS - Congestion

STOMACH - Glandular, Foci, 5x6 mm, >5, Round, Black,  
Found at trimming

STOMACH - Pigmentation, NOS, Glandular; STOMACH -  
Necrosis, Glandular

Animal ID: 260

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 703

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Mass, 50x41x30 mm, Oval, Firm,  
Tan

MAMMARY GLAND - Fibroadenoma

PITUITARY - Mass, 5mm in diameter, Round, Black

PITUITARY - Carcinoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE

Animal ID: 260  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 703

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Mass, 20x10x4 mm, Irregular,  
Firm, White, Found at trimming

MAMMARY GLAND - Galactoceles

Animal ID: 261  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 624

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 10x5x5 mm

PITUITARY - Adenoma, Pars Distalis

BRAIN - Autolysis, Severe

BRAIN - Autolysis

Animal ID: 262  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

SPLEEN - Enlarged, 35x10x6 mm

SPLEEN - Mononuclear Cell Leukemia

OVARIES - Left, Cyst, 15x10x2 mm, Irregular, Yellow

OVARIES - Cyst, Parovarian

LIVER - Mottled, Mild

LIVER - Bile Duct Hyperplasia; LIVER - Necrosis,  
Hepatocellular; LIVER - Biliary Fibrosis; LIVER -  
Inflammation, Chronic; LIVER - Lymphocytic  
Infiltrates; LIVER - Thrombus

PANCREAS - Mass, 1mm in diameter, Round, Tan

PERIPANCREATIC TISSUE - Mononuclear Cell Leukemia

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 263

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

MAMMARY GLAND - Enlarged, Mass, 33x27x9 mm, Irregular,  
Firm, Tan

MAMMARY GLAND - Fibroadenoma

LIVER - Median Lobe, Mass, 13x9x7 mm, Irregular, Firm,  
Red

LIVER - Diaphragmatic Nodule

Animal ID: 265

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

LIVER - All Lobes, Mottled, Moderate

LIVER - Basophilic Focus, Multiple; LIVER -  
Vacuolization, Hepatocellular; LIVER - Necrosis,  
Hepatocellular; LIVER - Inflammation, Chronic

UTERUS - Right Horn, Cysts, 2, Round, Clear, 4x3x4 mm,  
Soft, 2x2x3 mm, Hard

UTERUS - Cystic Endometrial Glandular Hyperplasia

PANCREAS - Nodule, 1mm in diameter, Raised, Firm,  
Dark, Found at trimming

PANCREAS - Islet Cell Adenoma

PITUITARY - Enlarged, Focus, 4x3 mm, Dark Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 266

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 379

Reference to Necropsy Record:

Related Histopathology:

BRAIN - Mass, 7x7x8 mm, Round, Brown with Multiple,  
Red Ulcerations, Found at trimming

BRAIN - Astrocytoma

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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CORRELATION OF GROSS & MICRO  
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STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE  
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Animal ID: 267  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728  
-----

Reference to Necropsy Record:

UTERUS - Body, Mass, 12x12x9 mm, Irregular, Firm,  
White

Related Histopathology:

UTERUS - (Tissue unavailable)

PITUITARY - Mass, 7x4 mm, Irregular, Red

PITUITARY - Adenoma, Pars Distalis  
-----

Animal ID: 268  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728  
-----

Reference to Necropsy Record:

MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:

MANDIBULAR LYMPH NODE - Inflammation, Chronic;  
MANDIBULAR LYMPH NODE - Pigmentation, NOS;  
MANDIBULAR LYMPH NODE - Hemorrhage

SKIN - Subcutaneous, Mass, 40x40x15 mm, Irregular,  
Firm, White

MAMMARY GLAND - Fibroadenoma

KIDNEY - Right Pelvis, Dilated, Severe

KIDNEY - Dilatation, Pelvis

PITUITARY - Mass, 6x4x2 mm, Irregular, Firm, Red

PITUITARY - Adenoma, Pars Distalis  
-----

Animal ID: 269  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728  
-----

Reference to Necropsy Record:

THYMUS - Enlarged, 15x11x0.5 mm, Discolored, Yellow/  
White

Related Histopathology:

THYMUS - Lipoma; THYMUS - Necrosis

LUNGS - Foci, 1mm in diameter, >5, Round, Black, Pale

LUNGS - Inflammation, Chronic/Active; LUNGS -  
Lymphocytic Infiltrates; LUNGS - Mineralization, NOS

HEART - Apex, Focus, 2mm in diameter, Round, White

HEART - Degeneration, Myocardial; HEART -  
Mineralization, NOS; HEART - Inflammation, Chronic  
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(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE

Animal ID: 269  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

SPLEEN - Mottled

SPLEEN - Mononuclear Cell Leukemia; SPLEEN -  
Pigmentation, NOS

ADRENALS - Right, Enlarged, 7x6x6 mm, Irregular, Tan

ADRENALS - Adenoma, Cortical

Animal ID: 270  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Abdominal, Masses, 2, 25x7x15 mm,  
34x22x7 mm, Irregular, Soft, White

MAMMARY GLAND - Fibroadenoma

SPLEEN - Cyst, 1mm in diameter, Round, Clear, Found  
at trimming

SPLEEN - Cyst, Capsular

PITUITARY - Mass, 4x5x3 mm, Irregular, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 271  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

LIVER - Left, Mass, 15x10x9 mm, Irregular, Firm, Red

LIVER - Hepatocellular Carcinoma

PITUITARY - Focus, 1mm in diameter, Round, Red

PITUITARY - Hyperplasia, NOS, Pars Distalis

UTERUS - Nodule, 2x0.5x0.5 mm, Red, Found at trimming

UTERUS - Endometrial Stromal Polyp

MESENTERY - Mass, 20x5x4 mm, Irregular, Firm, Tan,  
Found at trimming

MESENTERY - Cyst, NOS; MESENTERY - Inflammation,  
Chronic; MESENTERY - Mineralization, NOS; MESENTERY  
- Necrosis, Fat

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 272

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 527

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Body, Enlarged, 12x23 mm, Soft, Tan

UTERUS - Inflammation, Suppurative; UTERUS -  
Dilatation, Lumen

PITUITARY - Enlarged, 10x7x7 mm, Round, Dark Red

PITUITARY - Carcinoma, Pars Distalis

BRAIN - Dilatation, Moderate, Found at trimming

BRAIN - Hydrocephalus; BRAIN - Astrocytosis

Animal ID: 273

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 728

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 7mm in diameter, Round, Red

PITUITARY - Adenoma, Pars Distalis

LIVER - All Lobes, Mottled, Moderate

LIVER - Basophilic Focus, Multiple; LIVER -  
Vacuolization, Hepatocellular; LIVER - Inflammation,  
Chronic

Animal ID: 274

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 729

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Clitoral region, Mass, Irregular,  
Firm, White

MAMMARY GLAND - Adenoma, Cystic

UTERUS - Right, Enlarged, 30x7x5 mm

UTERUS - Cystic Endometrial Glandular Hyperplasia

UTERUS - Right, Mass, 20x8x7 mm, Irregular, Firm, Tan

UTERUS - Endometrial Adenocarcinoma

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE

Animal ID: 275  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 668

Reference to Necropsy Record:

SKIN - Subcutaneous, Abdominal, Mass, 110x70x60 mm,  
Irregular, Firm, Tan

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

VAGINA - Enlarged, 8x4 mm, Fluid filled, Soft, Clear,  
Found at trimming

VAGINA - Hypertrophy, Epithelial

Animal ID: 277  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 580

Reference to Necropsy Record:

SPLEEN - Enlarged, 80x23x17 mm

MESENTERY - Discoloration, Yellow

LIVER - All Lobes, Mottled, Found at trimming

Related Histopathology:

SPLEEN - Mononuclear Cell Leukemia

MESENTERY - No Microscopic Observation

LIVER - Bile Duct Hyperplasia; LIVER - Vacuolization,  
Hepatocellular; LIVER - Necrosis, Hepatocellular;  
LIVER - Hepatocytomegaly; LIVER - Biliary Fibrosis;  
LIVER - Lymphocytic Infiltrates

Animal ID: 278  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 708

Reference to Necropsy Record:

MANDIBULAR LYMPH NODE - Discolored, 2, Dark Red,  
Found at trimming

Related Histopathology:

MANDIBULAR LYMPH NODE - Autolysis

PITUITARY - Mass, 9x7x5 mm, Irregular, Soft, Found at  
trimming

PITUITARY - Autolysis

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE

Animal ID: 279  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 598

Reference to Necropsy Record:

SKIN - Subcutaneous, Mass, 90x80x45 mm, Irregular,  
Firm, Tan

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

Animal ID: 281  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 728

Reference to Necropsy Record:

LIVER - All Lobes, Mottled, Mild

Related Histopathology:

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Necrosis, Hepatocellular;  
LIVER - Biliary Fibrosis; LIVER - Inflammation,  
Chronic; LIVER - Lymphocytic Infiltrates

PITUITARY - Mass, 6x5x3 mm, Irregular, Firm,  
Black-Grey

PITUITARY - Adenoma, Pars Distalis

Animal ID: 282  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

CLITORAL GLAND - Mass, 5x7x10 mm, Hard, Dark Red

Related Histopathology:

CLITORAL GLAND - Adenoma

THYMUS - Decreased in size, 4x6x1 mm

THYMUS - (Tissue unavailable)

PITUITARY - Mass, 4x5x2 mm, Dark Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE

Animal ID: 283  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:  
SPLEEN - Enlarged, 50x14x6 mm

Related Histopathology:  
SPLEEN - Mononuclear Cell Leukemia

LIVER - Mottled, Moderate

LIVER - Basophilic Focus, Multiple; LIVER -  
Lymphocytic Infiltrates

Animal ID: 285  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 729

Reference to Necropsy Record:  
MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:  
MANDIBULAR LYMPH NODE - Mononuclear Cell Leukemia;  
MANDIBULAR LYMPH NODE - Hemorrhage

SPLEEN - Enlarged, 16x60x6 mm

SPLEEN - Mononuclear Cell Leukemia

UTERUS - Right, Mass, 55x23x9 mm, Fluid filled, Red

UTERUS - Cystic Endometrial Stromal Polyp

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 315

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 316

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 427

Reference to Necropsy Record:

Related Histopathology:

SPLEEN - Enlarged, 54x20x8 mm

SPLEEN - Mononuclear Cell Leukemia; SPLEEN -  
Hyperplasia, Erythroid Cell; SPLEEN - Necrosis

URINARY BLADDER - Enlarged, 25mm in diameter, Blood  
filled

URINARY BLADDER - Hemorrhage

BRAIN - Masses, 2, Red, Frontal Lobe, 5x5x3 mm, Round,  
Distal Lobe, 3x1 mm, Oblong

BRAIN - Necrosis; BRAIN - Hemorrhage

Animal ID: 317

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

CECUM - Mass, 11mm in diameter, Round, Firm, Dark  
Brown

CECUM - Mineralization, NOS; CECUM - Degeneration,  
Mucosal

PITUITARY - Focus, 1mm in diameter, Round, Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 318  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

PREPUTIAL GLAND - Masses, 2, Irregular, Firm, (Right)  
14x6x7 mm, Green-Tan, (Left) 12x9x8 mm, Yellow

Related Histopathology:

PREPUTIAL GLAND - Hyperkeratosis; PREPUTIAL GLAND -  
Hyperplasia, Squamous Cell; PREPUTIAL GLAND -  
Inflammation, Suppurative

SKIN - Hind Feet, Ulcerations, Irregular, Firm,  
(Right) 4x3x4 mm, Tan, (Left) 6x5x4 mm, Red

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

MESENTERY - Mass, 20x15x4 mm, Irregular, Firm, Tan

MESENTERY - Inflammation, Chronic/Active, Fat;  
MESENTERY - Necrosis, Fat

TESTES - Bilateral, Decreased in size, (Right)  
20x11x7 mm, (Left) 12x9x5 mm

TESTES - Degeneration, Seminiferous Tubule

TESTES - Right, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 319  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 646

Reference to Necropsy Record:

TESTES - Bilateral, Masses, Multiple, 1 to 3mm in  
diameter, >5, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Bilateral, Decreased in size, Moderate

TESTES - Degeneration, Seminiferous Tubule

PITUITARY - Mass, 10x10 mm, Round, Black

PITUITARY - Carcinoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 320

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 321

Pathologist: GRO

Animal Fate: Found Dead

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

SKIN - Right Jaw, Mass, 23x18x12 mm, Irregular, Firm,  
Tan

SKIN - Squamous Cell Carcinoma

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

STOMACH - Foci, 1 to 5mm in diameter, >5, Black,  
Found at trimming

STOMACH - Autolysis

Animal ID: 324

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

LIVER - Median Lobe, Left Lobe, Foci, 1mm in diameter,  
>5, Round, Brown

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus; LIVER - Biliary Fibrosis; LIVER -  
Inflammation, Chronic

KIDNEY - Bilateral, Pitted, Mild

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 10mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 325

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 7mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 327

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

THYROID - Left, Mass, 9x8x7 mm, Irregular, Firm, Red

THYROID - C-Cell Carcinoma

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Mass, 7mm in diameter, Round, Red

PITUITARY - Carcinoma, Pars Distalis

TESTES - Bilateral, Decreased in size, 10x8x5 mm,  
12x9x6 mm

TESTES - Degeneration, Seminiferous Tubule

Animal ID: 328

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Bilateral, Pitted, Moderate, Discolored,  
Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

LIVER - All Lobes, Foci, 0.5 to 1mm in diameter, >5

LIVER - Bile Duct Hyperplasia; LIVER - Biliary  
Fibrosis; LIVER - Inflammation, Chronic

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 329  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

MESENTERY - Masses, 1 to 10mm in diameter, >5,  
Irregular, Firm, Tan

Related Histopathology:

MESENTERY - Mesothelioma

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White; Left, Enlarged, 35x18x18 mm

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

Animal ID: 330  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 10mm in diameter, >5,  
Irregular, Firm, Tan

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

SKIN - Subcutaneous, Right Hip, Mass, 75x45x15 mm,  
Irregular, Firm, White

SKIN - Fibroma

Animal ID: 331  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 332  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, Tan, Red

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 333  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

SKIN - Subcutaneous, On Back, Mass, 29x25x18 mm,  
Irregular, Raised, Firm, Tan

Related Histopathology:

SKIN - Keratoacanthoma

PANCREAS - Foci, 1 to 3mm in diameter, >5, Round, Red

PANCREAS - Degeneration, Acinar; PANCREAS - Hemorrhage

MESENTERY - Masses, 1 to 5mm in diameter, >5, Round,  
Tan

MESENTERY - Mesothelioma

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple; TESTES -  
Mesothelioma

Animal ID: 334  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

THYMUS - Decrease in size, 4x3x1 mm

Related Histopathology:

THYMUS - (Tissue unavailable)

SEMINAL VESICLES - Decrease in size, Severe

SEMINAL VESICLES - Atrophy, NOS

TESTES - Left, Decrease in size, Moderate

TESTES - Degeneration, Seminiferous Tubule

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 334

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

ABDOMINAL CAVITY - Mass, 15x12x4 mm, Irregular, Hard,  
Yellow

ABDOMINAL CAVITY - Necrosis, Fat; ABDOMINAL CAVITY -  
Mineralization, NOS, Fat; ABDOMINAL CAVITY -  
Inflammation, Chronic

SKIN - Foot, Right back, Ulceration, 6x9x1 mm,  
Irregular, Firm, Red

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

Animal ID: 335

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 7mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Right, Decreased, 17x9x7 mm

TESTES - Degeneration, Seminiferous Tubule

PITUITARY - Mass, 5x3x4 mm, Irregular, Firm, Brown

PITUITARY - Adenoma, Pars Distalis

Animal ID: 336

Pathologist: GRO

Animal Fate: Found Dead

Days on Test: 708

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, White, Found at trimming

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Left, Decreased in size, 8x4x4 mm, Found at  
trimming

TESTES - Degeneration, Seminiferous Tubule

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 337

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

LUNGS - All Lobes, Foci, 1 to 2mm in diameter, >5,  
Round, Red

LUNGS - Inflammation, Chronic/Active

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Left, Decreased in size, 11x4x4 mm

TESTES - Degeneration, Seminiferous Tubule

ABDOMINAL CAVITY - Mass, 12x27x5 mm, Irregular, Firm,  
Yellow, Found at trimming

ABDOMINAL CAVITY - Necrosis, Fat; ABDOMINAL CAVITY -  
Mineralization, NOS, Fat; ABDOMINAL CAVITY -  
Inflammation, Chronic

INTESTINAL TRACT - Gas filled

INTESTINAL TRACT - No tissue taken

Animal ID: 338

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

KIDNEY - Bilateral, Discoloration, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Decreased in size, 2, (Right)  
12x7x7 mm, (Left) 14x7x7 mm

TESTES - Degeneration, Seminiferous Tubule

PITUITARY - Mass, 9mm in diameter, Round, Dark Red

PITUITARY - Carcinoma, Pars Distalis

STOMACH - Foci, 2 to 3mm in diameter, 2, Black, Found  
at trimming

STOMACH - No Corollary change detected

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 340  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 717

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 341  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

KIDNEY - Bilateral, Pitted, Mild, Discoloration, Pale

Related Histopathology:

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

PITUITARY - Mass, 6x5x4 mm, Round, Firm, Red

PITUITARY - Adenoma, Pars Distalis

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Left, Decreased in size, Moderate

TESTES - Degeneration, Seminiferous Tubule

SKIN - Ear, Mass, 10mm in diameter, Round, Firm, Red

SKIN - Neural Crest Neoplasm (Ear)

Animal ID: 342  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

KIDNEY - Bilateral, Pitted, Moderate

Related Histopathology:

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Mass, 1 to 15mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 342  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Right Shoulder, Mass, 8x7x3 mm,  
Irregular, Firm, Tan

SKIN - Epidermal Inclusion Cyst

Animal ID: 343  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Left Abdominal area, Mass,  
95x80x38 mm, Irregular, Firm, Tan-Red

SKIN - Sarcoma, NOS

TESTES - Left, Decreased in size, 9x5x4 mm

TESTES - Degeneration, Seminiferous Tubule

TESTES - Right, Masses, 1 to 7mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 344  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Around Testicle, Mass, 20x10x10  
mm, Firm, Tan, Red

SKIN - Lipoma

TESTES - Masses, 1 to 5mm in diameter, >5, Soft, Tan,  
Red; Left, Enlarged, 45x22x20 mm

TESTES - Interstitial Cell Adenoma, Multiple

LIVER - Left Lobe, Mass, 13x13x1 mm, Tan

LIVER - Hepatocellular Carcinoma

MANDIBULAR LYMPH NODE - Discolored, Red

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Hemorrhage

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 345  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

SKIN - Mass, Irregular, Hard, Pink

SKIN - Epidermal Inclusion Cyst

MANDIBULAR LYMPH NODE - Discolored, Red

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Hemorrhage

TESTES - Right, Decreased in size, 17x10x6 mm

TESTES - Degeneration, Seminiferous Tubule

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Mass, 5x6x4 mm, Irregular, Red

PITUITARY - Adenoma, Pars Distalis

SKIN - Feet, Bilateral, Ulceration, Irregular, Red,  
(Right) 5x2x1 mm, (Left) 6x3x1 mm

SKIN - Ulceration; SKIN - Inflammation, Suppurative

THYMUS - Foci, 1 to 2mm in diameter, >5, Red

THYMUS - Atrophy, NOS

Animal ID: 346

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

LIVER - Median, Focus, 2mm in diameter, Round, Red

LIVER - Eosinophilic Focus

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 347  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

LIVER - Median Lobe, Foci, 3x2x3 mm, Irregular, Brown

Related Histopathology:

LIVER - Eosinophilic Focus

TESTES - Bilateral, Masses, 1 to 7mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Left, Small, 11x5x3 mm

TESTES - Degeneration, Seminiferous Tubule

Animal ID: 348  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

KIDNEY - Bilateral, Discoloration, Dark Brown

Related Histopathology:

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Focus, 1mm in diameter, Round, Red

PITUITARY - Hyperplasia, NOS, Pars Distalis

Animal ID: 349  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, Tan, Red

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Mass, 2x2x0.5 mm, Soft, Dark Red

PITUITARY - Adenoma, Pars Distalis

LIVER - Left Lobe, Focus, 1x1 mm, Tan

LIVER - Eosinophilic Focus

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 350  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

TESTES - Masses, 1 to 5mm in diameter, >5, Firm, Tan,  
Red

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Pitted, Mild

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

LIVER - All Lobes, Foci, 0.5 to 2mm in diameter, Dark  
Red

LIVER - Bile Duct Hyperplasia; LIVER - Biliary  
Fibrosis; LIVER - Eosinophilic Focus

Animal ID: 352  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

KIDNEY - Bilateral, Pitted, Moderate

Related Histopathology:

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 353  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

LIVER - Round, Brown, (Median Lobe) Focus, 3mm in  
Diameter, (Right Lobe) Foci, 2mm in Diameter, 2

Related Histopathology:

LIVER - Eosinophilic Focus, Multiple

TESTES - Bilateral, Decreased in size, (Right)  
17x10x6 mm, (Left) 18x10x5 mm

TESTES - Degeneration, Seminiferous Tubule

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 354  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

KIDNEY - Bilateral, Pitted, Mild, Discoloration, Dark  
Brown

Related Histopathology:

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 356  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Left, Blood filled

TESTES - Cyst, NOS, Multiple

THYROID - Right, Enlarged, 6x5x25 mm, Found at  
trimming

THYROID - C-Cell Adenoma

Animal ID: 357  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

PANCREAS - Foci, 1 to 3mm in diameter, >5, Round,  
Black

Related Histopathology:

PANCREAS - No Corollary change detected

KIDNEY - Bilateral, Discoloration, 2, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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CORRELATION OF GROSS & MICRO  
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STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

-----  
Animal ID: 391  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

-----  
Animal ID: 392  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 507

Reference to Necropsy Record:

SPLEEN - Enlarged, 63x18x9 mm

Related Histopathology:

SPLEEN - Mononuclear Cell Leukemia

LIVER - Mottled, Tan and Brown

LIVER - Bile Duct Hyperplasia; LIVER - Necrosis,  
Hepatocellular; LIVER - Lymphocytic Infiltrates;  
LIVER - Mineralization, NOS

BRAIN - Hemorrhage, Red

BRAIN - Hemorrhage

-----  
Animal ID: 393  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 640

Reference to Necropsy Record:

INTESTINAL TRACT - Esophagus to Rectum, Gas filled

Related Histopathology:

INTESTINAL TRACT - No tissue taken

TESTES - Bilateral, Masses, 1 to 3mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

STOMACH - Glandular, Foci, 1 to 5mm in diameter, >5,  
Irregular, Black, Found at trimming

STOMACH - Inflammation, Chronic/Active, Glandular;  
STOMACH - Necrosis, Glandular; STOMACH - Hemorrhage,  
Glandular

STOMACH - Forestomach, Foci, 1 to 2mm in diameter, 3,  
Round, Soft, Brown, Found at trimming

STOMACH - Hyperkeratosis, Forestomach; STOMACH -  
Ulceration, Forestomach; STOMACH - Inflammation,  
Chronic/Active, Forestomach

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(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 395  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

LIVER - Enlarged, Moderate, Mottled

LIVER - Caudate Lobe, Mass, 7x10x2 mm, Irregular,  
Firm, Red

PITUITARY - Mass, 6x5x3 mm, Irregular, Red

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, White

Related Histopathology:

LIVER - Bile Duct Hyperplasia; LIVER - Biliary  
Fibrosis; LIVER - Eosinophilic Focus, Multiple;  
LIVER - Basophilic Focus

LIVER - Hyperplasia, Hepatocellular

PITUITARY - Adenoma, Pars Distalis

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 398  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

PREPUTIAL GLAND - Mass, 7x12x8 mm, Irregular, Soft,  
White

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, White; Right, Enlarged, 32x12x16 mm

SKIN - Rear Foot, Ulceration, 4x4x1 mm, Firm, Tan

TESTES - Left, Decreased in size, 18x9x8 mm

KIDNEY - Bilateral, Pitted

KIDNEY - Right, Cyst, 2mm in diameter, Fluid filled,  
Clear

Related Histopathology:

PREPUTIAL GLAND - Squamous Cell Carcinoma

TESTES - Interstitial Cell Adenoma, Multiple

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

TESTES - Degeneration, Seminiferous Tubule

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

KIDNEY - Chronic Progressive Nephropathy

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 399  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 10mm in diameter, >5,  
Irregular, Firm, Tan

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 400  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Hemorrhage

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, Tan; Right, Enlarged, 34x18x12 mm

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Pitted, Moderate

KIDNEY - Hyperplasia, Epithelial, Tubular; KIDNEY -  
Chronic Progressive Nephropathy

PANCREAS - Foci, 0.5 to 1mm in diameter, >2, Firm,  
Red

PANCREAS - No Corollary change detected

Animal ID: 402  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

KIDNEY - Pitted, Mild

Related Histopathology:

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

LIVER - All Lobes, Foci, 0.5 to 2mm in diameter, >5,  
Dark Red

LIVER - Eosinophilic Focus, Multiple

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan, Found at trimming

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 403  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:  
TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

Related Histopathology:  
TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Right, Decreased in size, 13x6x6 mm

TESTES - Degeneration, Seminiferous Tubule

PITUITARY - Focus, 2mm in diameter, Round, Dark Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 404  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:  
KIDNEY - Bilateral, Pitted, Moderate, Pale

Related Histopathology:  
KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

PITUITARY - Mass, 5x5x3 mm, Irregular, Soft, Red

PITUITARY - Adenoma, Pars Distalis

LIVER - Left, Focus, 3mm in diameter, Round, Red

LIVER - Vacuolated Cell Focus

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Left, Decreased in size, 11x5x3 mm

TESTES - Degeneration, Seminiferous Tubule

Animal ID: 405  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 680

Reference to Necropsy Record:  
LIVER - Left Lobe, Focus, 2x1 mm

Related Histopathology:  
LIVER - Altered Cell Focus

KIDNEY - Mottled

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Mineralization, NOS, Medulla

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 405  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 680

Reference to Necropsy Record:

Related Histopathology:

SPLEEN - Enlarged, 55x14x7 mm, Found at trimming

SPLEEN - Mononuclear Cell Leukemia

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan, Found at trimming

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Focus, 2x1x1 mm, Round, Black, Found at  
trimming

PITUITARY - Adenoma, Pars Distalis

BRAIN - Foci, 1 to 2mm in diameter, >5, Round, Black,  
Found at trimming

BRAIN - Hemorrhage

Animal ID: 406  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Mass, 5mm in diameter, Round, Dark Red

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 407  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

PANCREAS - Mass, 18x13x7 mm, Irregular, Firm, Tan

Related Histopathology:

PANCREAS - Acinar Cell Carcinoma

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 408  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

PREPUTIAL GLAND - Abscess, (Right) 6x5x3 mm, (Left)  
2x1x1 mm, 2, Irregular, Firm, Brown/Green

Related Histopathology:

PREPUTIAL GLAND - Hyperplasia, Epithelial; PREPUTIAL  
GLAND - Inflammation, Suppurative

PANCREAS - Nodules, 2 to 5mm in diameter, >5,  
Irregular, Soft, Blue

PANCREAS - Polyarteritis

LUNGS - Diaphragmatic, Nodule, 2x1x1 mm, Irregular,  
Tan

LUNGS - Alveolar/Bronchiolar Hyperplasia

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Hard, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 410  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

LIVER - Median Lobe, Focus, 2mm in diameter, Round,  
Red

LIVER - Eosinophilic Focus

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 411  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

TESTES - Right, Masses, 1 to 5mm in diameter, >5,  
Soft, Red, Tan

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Pitted, Moderate, Dark Brown

KIDNEY - Chronic Progressive Nephropathy

LIVER - Median Lobe, Foci, 0.5 to 2mm in diameter, >5,  
Dark Red

LIVER - Bile Duct Hyperplasia; LIVER - Vacuolization,  
Hepatocellular; LIVER - Biliary Fibrosis; LIVER -  
Inflammation, Chronic

PITUITARY - Mass, 7x6x8 mm, Dark Red

PITUITARY - Carcinoma, Pars Distalis

TESTES - Bilateral, Decreased in size, 10x5x4 mm,  
12x6x5 mm

TESTES - Degeneration, Seminiferous Tubule

Animal ID: 413  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

LIVER - All Lobes, Foci, 1 to 2mm in diameter, >5,  
Round, Red

Related Histopathology:

LIVER - Eosinophilic Focus, Multiple

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Left, Decreased in size, 18x9x9 mm

TESTES - Degeneration, Seminiferous Tubule

KIDNEY - Bilateral, Discoloration, Yellow-Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Pigmentation, NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 414  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

TESTES - Enlarged, 40x22x16 mm

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, Tan

KIDNEY - Pitted, Moderate

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple; TESTES -  
Degeneration, Seminiferous Tubule

TESTES - Interstitial Cell Adenoma, Multiple; TESTES -  
Degeneration, Seminiferous Tubule

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

Animal ID: 416  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

ADRENALS - Left, Focus, 1mm in diameter, Round, Soft,  
Grey

ADRENALS - Left, Focus, 2x1 mm, Irregular, Soft, Red

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Left, Cyst, 3x4x2 mm, Irregular, Soft, Clear

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan

PITUITARY - Mass, 4x3x2 mm, Irregular, Soft, Black

LUNGS - All Lobes, Foci, 1mm in diameter, >5, Round,  
Black

Related Histopathology:

ADRENALS - Vacuolated Cell Focus

ADRENALS - Pheochromocytoma

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Pigmentation, NOS

KIDNEY - Cyst, NOS

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Adenoma, Pars Distalis

LUNGS - Inflammation, Chronic/Active

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 417  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

LIVER - Median Lobe, 4mm in diameter, Round, Soft,  
White

Related Histopathology:

LIVER - Hepatodiaphragmatic Nodule

TESTES - Bilateral, 1 to 5mm in diameter, >5, Round,  
Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Mass, 3x3x1 mm, Round, Red

PITUITARY - Hematocyst, Pars Distalis

Animal ID: 418  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 553

Reference to Necropsy Record:

SPLEEN - Enlarged, 70x20x15 mm

Related Histopathology:

SPLEEN - Mononuclear Cell Leukemia

LIVER - Mottled, Tan and Brown

LIVER - Bile Duct Hyperplasia; LIVER - Biliary  
Fibrosis; LIVER - Lymphocytic Infiltrates

ADRENALS - Bilateral, Enlarged, 5mm in diameter, 2

ADRENALS - Vacuolization, Cytoplasmic, Cortical

TESTES - Bilateral, Multiple Masses, 1 to 5mm in  
diameter, >5, Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

BRAIN - Darkened areas, 1 to 2mm in diameter, >5,  
Round, Black

BRAIN - Necrosis; BRAIN - Hemorrhage

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 6

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 419

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

TESTES - Bilateral, Mass, 1 to 5mm in diameter, >5,  
Irregular, Firm, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

LIVER - Left Lobe, Focus, 8x4x3 mm, Irregular, Red

LIVER - Hemorrhage

Animal ID: 420

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 727

Reference to Necropsy Record:

KIDNEY - Bilateral, Pitted, Mild

Related Histopathology:

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 10mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 422

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

TESTES - Bilateral, Mass, 1 to 7mm in diameter, >5,  
Irregular, Firm, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 423  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:  
PITUITARY - Mass, 6x6x5 mm, Irregular, Red

Related Histopathology:  
PITUITARY - Adenoma, Pars Distalis

KIDNEY - Bilateral, Pitted

KIDNEY - Chronic Progressive Nephropathy; KIDNEY - Cytoplasmic Droplets; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5, Round, White

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Right, Decreased in size, Severe

TESTES - Degeneration, Seminiferous Tubule

MESENTERY - Masses, 20x10x5 mm, 10x5x2 mm, 2, Irregular, Soft, Yellow

MESENTERY - Lipoma; MESENTERY - Inflammation, Chronic/Active, Fat

LIVER - Mottled, Mild, Red

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic Focus, Multiple; LIVER - Vacuolization, Hepatocellular; LIVER - Biliary Fibrosis

Animal ID: 425  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:  
KIDNEY - Bilateral, Pitted, Mild, Pale

Related Histopathology:  
KIDNEY - Chronic Progressive Nephropathy

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5, Round, Firm, White, Left, Enlarged

TESTES - Interstitial Cell Adenoma, Multiple

SEMINAL VESICLES - Decrease in size, Moderate

SEMINAL VESICLES - Atrophy, NOS

LIVER - Median Lobe, Foci, Round, 2, 2mm in diameter, Red, 1mm in diameter, White

LIVER - Eosinophilic Focus, Multiple

LIVER - Left Lobe, Focus, 3mm in diameter, Round, Red

LIVER - Eosinophilic Focus, Multiple

PITUITARY - Focus, 3mm in diameter, Round, Red

PITUITARY - Hyperplasia, NOS, Pars Distalis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 426  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

PITUITARY - Mass, 4x5x1 mm, Irregular, Soft, Red

LIVER - Median Lobe, 7x5x2 mm, Irregular, Firm, Red

LIVER - Left Lobe, Discolored area, 17x12 mm,  
Irregular, White

TESTES - Masses, 1 to 2mm in diameter, >5, Irregular,  
Firm, White, Found at trimming

Related Histopathology:

PITUITARY - Adenoma, Pars Distalis

LIVER - Hepatocellular Adenoma

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus; LIVER - Basophilic Focus; LIVER - Biliary  
Fibrosis

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 428  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

SKIN - Subcutaneous, Mass, 3mm in diameter, Round,  
Soft, Black

SPLEEN - Enlarged, 50x15x10 mm

KIDNEY - Bilateral, Pitted, Mild

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

LIVER - Mottled, Mild

Related Histopathology:

MAMMARY GLAND - Galactocoele

SPLEEN - Mononuclear Cell Leukemia

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Interstitial Cell Adenoma, Multiple

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Biliary Fibrosis; LIVER -  
Lymphocytic Infiltrates

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 429  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:  
KIDNEY - Bilateral, Pitted, Moderate

Related Histopathology:  
KIDNEY - Hyperplasia, Epithelial, Tubular; KIDNEY -  
Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

SPLEEN - Enlarged, 45x13x7 mm

SPLEEN - Hyperplasia, Lymphocytic; SPLEEN -  
Hyperplasia, Erythroid Cell

LIVER - Median Lobe, Focus, 1mm in diameter, Round,  
White

LIVER - Vacuolated Cell Focus

Animal ID: 430  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 672

Reference to Necropsy Record:  
KIDNEY - Bilateral, Mottled, Red and Tan

Related Histopathology:  
KIDNEY - Chronic Progressive Nephropathy

INTESTINAL TRACT - Gas filled, Mild

INTESTINAL TRACT - No microscopic observation

PITUITARY - Mass, 8mm in diameter, Round, Firm, Tan

PITUITARY - Carcinoma, Pars Distalis

Animal ID: 431  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:  
TESTES - Bilateral, Masses, (Right) 28x18x13 mm,  
(Left) 29x18x15 mm, >5, Dark Red, White

Related Histopathology:  
TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 431  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

KIDNEY - Bilateral, Discolored, Dark Brown

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS; KIDNEY -  
Inflammation, Suppurative

SKIN - Bilateral, Rear Feet, Ulceration, (Right)  
3x3x0.5 mm, Dark Red; (Left) 4x3x0.5 mm, Red, Tan

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

LIVER - Mottled, Dark

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Biliary Fibrosis

Animal ID: 432  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 668

Reference to Necropsy Record:

Related Histopathology:

INTESTINAL TRACT - Gas filled, Moderate

INTESTINAL TRACT - No microscopic observation

TESTES - Bilateral, Decreased in size, 7x4x4 mm

TESTES - Degeneration, Seminiferous Tubule

PITUITARY - Mass, 5mm in diameter, Round, Soft, Black

PITUITARY - Adenoma, Pars Distalis

Animal ID: 433  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

SALIVARY GLAND - Enlarged, 22x14x8 mm, Irregular,  
Firm, Tan

SALIVARY GLAND - Fibrosarcoma

KIDNEY - Right, Mass, 21x17x10 mm, Irregular, Firm,  
Red

KIDNEY - Lipoma

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 433  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 15 mm, >5, Irregular,  
Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

SKIN - Left Hind Foot, Ulceration, 13x4x2 mm,  
Irregular, Firm, Brown

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

BRAIN - Cerebrum, Left, Focus, 4x2x1 mm, Tan

BRAIN - Astrocytoma

Animal ID: 434  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Mass, 2mm in diameter, Round, Dark Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 435  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

LIVER - Foci, 1 to 2mm in diameter, >5, Round, Red

LIVER - Eosinophilic Focus, Multiple

PITUITARY - Mass, 5x6x4 mm, Round, Red

PITUITARY - Carcinoma, Pars Distalis

TESTES - Mass, 1mm in diameter, Round, Firm, White,  
Found at trimming

TESTES - Hyperplasia, Interstitial Cell; TESTES -  
Degeneration, Seminiferous Tubule

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 465

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, On Back, Mass, 28x22x13 mm,  
Irregular, Firm, Tan

SKIN - Keratoacanthoma

PITUITARY - Mass, 4x4x3 mm, Irregular, Tan and Red

PITUITARY - Adenoma, Pars Distalis

LIVER - Median Lobe, Focus, 2mm in diameter, Round,  
Red

LIVER - Eosinophilic Focus

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan; Enlarged, 26x13x12 mm, Found  
at trimming

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 466

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 701

Reference to Necropsy Record:

Related Histopathology:

KIDNEY - Bilateral, Mottled, 2, Tan and Red

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Mineralization, NOS, Medulla

PITUITARY - Mass, 11mm in diameter, Round, Firm,  
Black

PITUITARY - Carcinoma, Pars Distalis

Animal ID: 467

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 630

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, Multiple, 1 to 3mm in  
diameter, >5, Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

SPLEEN - Enlarged, 75x20x13 mm

SPLEEN - Mononuclear Cell Leukemia

LUNGS - Left Lobe, Mass, 3x4 mm, Irregular, White

LUNGS - (Tissue unavailable)

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 467  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 630

Reference to Necropsy Record:

Related Histopathology:

LIVER - All Lobes, Mottled, Tan and Red

LIVER - Bile Duct Hyperplasia; LIVER - Vacuolization,  
Hepatocellular; LIVER - Necrosis, Hepatocellular;  
LIVER - Biliary Fibrosis; LIVER - Lymphocytic  
Infiltrates

INTESTINAL TRACT - Gas filled

INTESTINAL TRACT - No tissue taken

Animal ID: 468  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 469  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

LUNGS - Cardiac Lobe, Foci, 1mm in diameter, >5,  
Round, Black

LUNGS - Mineralization, NOS

SKIN - Foot, Right, Ulceration, 7x6 mm, Irregular,  
Red

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

MESENTERY - Mass, 30x18x10 mm, Irregular, Firm,  
Yellow

MESENTERY - Inflammation, Chronic, Fat; MESENTERY -  
Necrosis, Fat

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 470  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 255

Reference to Necropsy Record:

ADRENALS - Bilateral, Enlarged, 5mm in diameter, 2,  
Round, Red

Related Histopathology:

ADRENALS - Vacuolization, Cytoplasmic, Cortical

Animal ID: 471  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 449

Reference to Necropsy Record:

PITUITARY - Mass, 9x7x6 mm, Irregular, Firm, Red

Related Histopathology:

PITUITARY - Carcinoma, Pars Distalis

THYROID - Mass, 6x4x4 mm, Irregular, Firm, Red

THYROID - C-Cell Carcinoma

Animal ID: 472  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Mineralization, NOS, Medulla; KIDNEY - Inflammation,  
Suppurative

LIVER - Foci, 0.5 to 1mm in diameter, >5, Dark

LIVER - Eosinophilic Focus; LIVER - Basophilic Focus,  
Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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CORRELATION OF GROSS & MICRO  
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STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE  
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Animal ID: 473

Pathologist: GRO

Animal Fate: Moribund Sacrifice

Days on Test: 651  
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Reference to Necropsy Record:

Related Histopathology:

LUNGS - All Lobes, Masses, 1 to 3mm in diameter, >5,  
Round, White

LUNGS - Lymphocytic Infiltrates; LUNGS -  
Mineralization, NOS; LUNGS - Hemorrhage

LIVER - All Lobes, Mottled, Black and Tan

LIVER - Bile Duct Hyperplasia; LIVER - Necrosis,  
Hepatocellular; LIVER - Lymphocytic Infiltrates;  
LIVER - Hemorrhage

KIDNEY - Bilateral, Pitted, Severe

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Lymphocytic Infiltrates

ADRENALS - Bilateral, Enlarged, 4mm in diameter

ADRENALS - Vacuolization, Cytoplasmic, Cortical;  
ADRENALS - Lymphocytic Infiltrates

SKIN - Back, Mass, 35x30x17 mm, Irregular, Firm, Tan

SKIN - Epidermal Inclusion Cyst

SPLEEN - Enlarged, 52x20x12 mm

SPLEEN - Mononuclear Cell Leukemia

TESTES - Bilateral, Mass, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan, Found at trimming

TESTES - Interstitial Cell Adenoma, Multiple; TESTES -  
Degeneration, Seminiferous Tubule  
-----

Animal ID: 474

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 727  
-----

Reference to Necropsy Record:

Related Histopathology:

LIVER - All Lobes, Mottled, Tan and Red

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Basophilic Focus; LIVER -  
Biliary Fibrosis; LIVER - Inflammation, Chronic

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White; Right, Enlarged, 33x19x19 mm

TESTES - Interstitial Cell Adenoma, Multiple  
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(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 474  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 3x2 mm, Irregular, Black

PITUITARY - Adenoma, Pars Distalis

SPLEEN - Enlarged, 45x10x10 mm

SPLEEN - Fibrosis; SPLEEN - Hyperplasia, Erythroid  
Cell; SPLEEN - Hyperplasia, Lymphocytic

Animal ID: 475  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

PREPUTIAL GLAND - Abscess, 17x11x6 mm, Irregular, Red

PREPUTIAL GLAND - Adenocarcinoma; PREPUTIAL GLAND -  
Inflammation, Suppurative

KIDNEY - Bilateral, Pitted, Severe

KIDNEY - Chronic Progressive Nephropathy

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 476  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 553

Reference to Necropsy Record:

Related Histopathology:

ABDOMINAL CAVITY - Masses, Multiple, 1 to 3mm in  
diameter, >5, Round, Firm, Tan, Fluid filled, Brown

ABDOMINAL CAVITY - Mesothelioma

TESTES - Bilateral, Masses, Multiple, 1 to 5mm in  
diameter, >5, Irregular, White; Right, Enlarged,  
35x15x15 mm

TESTES - Interstitial Cell Adenoma, Multiple; TESTES -  
Mesothelioma

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 478  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:  
SPLEEN - Enlarged, 65x18x9 mm

Related Histopathology:  
SPLEEN - Mononuclear Cell Leukemia

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Mineralization, NOS,  
Medulla; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 479  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 726

Reference to Necropsy Record:  
EPIDIDYIMIDES - Left, Mass, 20x10x12 mm, Irregular,  
Firm, Dark Red, Found at trimming

Related Histopathology:  
EPIDIDYIMIDES - Autolysis

TESTES - Bilateral, Mass, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan, Found at trimming

TESTES - Autolysis

PITUITARY - Mass, 7x5x4 mm, Irregular, Soft, Dark Red,  
Found at trimming

PITUITARY - Autolysis

Animal ID: 480  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 713

Reference to Necropsy Record:  
SPLEEN - Enlarged, 70x16x13 mm, Found at trimming

Related Histopathology:  
SPLEEN - Autolysis

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan, Found at trimming

TESTES - Autolysis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 480  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 713

Reference to Necropsy Record:

Related Histopathology:

TESTES - Left, Decreased in size, 15x8x5 mm, Found at  
trimming

TESTES - Autolysis

Animal ID: 481  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

LUNGS - All Lobes, Discoloration, Light Pink-Tan

LUNGS - Inflammation, Chronic; LUNGS - Lymphocytic  
Infiltrates

LIVER - All Lobes, Discolored, Light Tan, Right Lobe,  
Enlarged, Foci, 1 to 2mm in diameter, 2, Round,  
Red-White

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Basophilic Focus, Multiple;  
LIVER - Vacuolization, Hepatocellular; LIVER -  
Necrosis, Hepatocellular; LIVER - Biliary Fibrosis;  
LIVER

SPLEEN - Enlarged, 77x27x15 mm

SPLEEN - Mononuclear Cell Leukemia

KIDNEY - Bilateral, Discolored, Mottled, Pitted

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Pigmentation, NOS

PITUITARY - Mass, 4x6x2 mm, Irregular, Firm, Red

PITUITARY - Carcinoma, Pars Distalis

SKIN - Hind Feet, Bottom, Ulceration, Irregular,  
Tan-Red, (Right) 10x9x4 mm, Firm; (Left) 5x5x2 mm,  
Soft and Puss filled

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 482  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 710

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White, Left, Enlarged, 35x15x15 mm

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

SKIN - Under Left Ear, Mass, 55x22x15 mm, Irregular,  
Firm, Tan

ZYMBAL'S GLAND - Sebaceous Cell Adenocarcinoma

Animal ID: 483  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 521

Reference to Necropsy Record:

SPLEEN - Enlarged, 73x20x16 mm

Related Histopathology:

SPLEEN - Mononuclear Cell Leukemia

ADRENALS - Bilateral, Enlarged, 5mm in diameter, 2

ADRENALS - Vacuolization, Cytoplasmic, Cortical;  
ADRENALS - Lymphocytic Infiltrates

BRAIN - Cortex, Hemorrhage, 5x4 mm, Red

BRAIN - Hemorrhage

PITUITARY - Mass, 6x5 mm, Red

PITUITARY - Adenoma, Pars Distalis

TESTES - Discolored, Red, Found at trimming

TESTES - Degeneration, Seminiferous Tubule; TESTES -  
Lymphocytic Infiltrates; TESTES - Hemorrhage

Animal ID: 484  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 717

Reference to Necropsy Record:

LUNGS - Congestion, Severe

Related Histopathology:

LUNGS - Bronchiolar Epithelial Hyperplasia; LUNGS -  
Inflammation, Chronic/Active

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 485  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

PITUITARY - Mass, 4x5x3 mm, Irregular, Soft, Red

KIDNEY - Bilateral, Pitted, Moderate, Pale

LIVER - Foci, 1 to 5mm in diameter, >5, Round, Red

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, White

Related Histopathology:

PITUITARY - Carcinoma, Pars Distalis

KIDNEY - Chronic Progressive Nephropathy

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Basophilic Focus, Multiple;  
LIVER - Vacuolization, Hepatocellular; LIVER -  
Biliary Fibrosis

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 486  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 710

Reference to Necropsy Record:  
INTESTINAL TRACT - Gas filled

KIDNEY - Bilateral, Pitted, Moderate

TESTES - Bilateral, Decreased in size, 12x4x4 mm, 2

PITUITARY - Mass, 9mm in diameter, Round, Black

Related Histopathology:

INTESTINAL TRACT - No microscopic observation

KIDNEY - Chronic Progressive Nephropathy

TESTES - Hyperplasia, Interstitial Cell; TESTES -  
Degeneration, Seminiferous Tubule

PITUITARY - Carcinoma, Pars Distalis

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 487  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 706

Reference to Necropsy Record:

TESTES - Mass, 1 to 5mm in diameter, >5, Irregular,  
Firm, Tan, Found at trimming

Related Histopathology:

TESTES - Autolysis

SPLEEN - Enlarged, 70x15x20 mm, Found at trimming

SPLEEN - Autolysis

Animal ID: 491  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

TESTES - Masses, 1 to 5mm in diameter, >5, Firm, Tan,  
Red

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Mineralization, NOS, Medulla

LIVER - Left Lobe, Enlarged, All Lobes, Mottled,  
Moderate

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Biliary Fibrosis

Animal ID: 492  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 701

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 3mm in diameter, >5,  
Irregular, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 493  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Pitted, Mild

KIDNEY - Chronic Progressive Nephropathy

LIVER - All Lobes, Foci, 0.5 to 1mm in diameter, >5

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Basophilic Focus, Multiple;  
LIVER - Biliary Fibrosis

PITUITARY - Cyst, 2mm in diameter, Fluid filled,  
Clear

PITUITARY - Adenoma, Pars Distalis

Animal ID: 494  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

SKIN - Subcutaneous, Right Jaw, Mass, 55x47x40 mm,  
Irregular, Firm, Red

Related Histopathology:

SKIN - Sebaceous Cell Carcinoma

PREPUTIAL GLAND - Mass, 48x30x18 mm, Irregular, Firm,  
Tan

PREPUTIAL GLAND - Adenocarcinoma

TESTES - Bilateral, Decreased in size, 2, 17x7x7 mm

TESTES - Degeneration, Seminiferous Tubule

TESTES - Bilateral, Masses, 1 to 3mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 495  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 593

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan, Found at trimming

Related Histopathology:

TESTES - Autolysis

Animal ID: 496  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:

MANDIBULAR LYMPH NODE - Plasmacytosis

LIVER - Foci, 1 to 2mm in diameter, >5, Round, Red

LIVER - Bile Duct Hyperplasia; LIVER - Basophilic  
Focus, Multiple; LIVER - Biliary Fibrosis

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 499  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

PANCREAS - Mass, 3x2x1 mm, Irregular, Firm, Tan

PANCREAS - Islet Cell Adenoma

PANCREAS - Foci, 0.5 to 1mm in diameter, >2, Red

PANCREAS - Congestion

KIDNEY - Pitted, Mild

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Mineralization, NOS, Medulla; KIDNEY - Pigmentation,  
NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 499  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

LIVER - Foci, 0.5 to 1mm in diameter, >5, Dark Red

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Vacuolization,  
Hepatocellular; LIVER - Biliary Fibrosis; LIVER -  
Inflammation, Chronic; LIVER - Degeneration, Cystic

SKIN - Subcutaneous, Left Shoulder, Mass, 40x45x9 mm,  
Irregular, Soft, White

SKIN - Lipoma

SPLEEN - Focus, 9x5x0.5 mm, Red

SPLEEN - Fibrosis

SPLEEN - Enlarged, 45x10x5 mm

SPLEEN - Hyperplasia, Erythroid Cell; SPLEEN -  
Pigmentation, NOS

Animal ID: 500  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 611

Reference to Necropsy Record:

Related Histopathology:

ABDOMINAL CAVITY - Masses, Multiple, <1 to 3mm in  
diameter, >5, Fluid Filled, Round, Tan

ABDOMINAL CAVITY - Mesothelioma

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, Tan, Found at trimming

TESTES - Interstitial Cell Adenoma, Multiple; TESTES -  
Mesothelioma

Animal ID: 501  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 701

Reference to Necropsy Record:

Related Histopathology:

SPLEEN - Enlarged, 84x20x10 mm, Irregular, Firm,  
Black

SPLEEN - Mononuclear Cell Leukemia

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 501  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 701

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Focus, 2x2x1 mm, Irregular, Firm, Red,  
Found at trimming

PITUITARY - Adenoma, Pars Distalis

TESTES - Right, Decreased in size, 10x4x4 mm

TESTES - Degeneration, Seminiferous Tubule

TESTES - Left, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

HEART - Left Atrium, Mass, 10x8x4 mm, Irregular, Firm,  
Black, Found at trimming

HEART - Thrombus

INTESTINAL TRACT - Gas filled

INTESTINAL TRACT - No tissue taken

Animal ID: 502  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 668

Reference to Necropsy Record:

Related Histopathology:

EYES - Left, Cataract

EYES - Cataract

SPLEEN - Enlarged, 68x16x9 mm

SPLEEN - Mononuclear Cell Leukemia

TESTES - Bilateral, Masses, 1 to 3mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

INTESTINAL TRACT - Gas filled, Moderate

INTESTINAL TRACT - No tissue taken

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 503  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 505  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 21x11x8 mm, >5, Dark Red,  
White

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Bilateral, Foci, Multiple, Brown, Black

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Mineralization, NOS, Medulla

SKIN - Rear Feet, Ulceration, Hard, Tan, (Right)  
3x3x0.5 mm; (Left) 4x3x0.5 mm

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

PITUITARY - Mass, 8x7x4 mm, Red, Dark Red

PITUITARY - Adenoma, Pars Distalis

LIVER - Foci, Multiple, Mottled, <5mm, >5, Dark Red

LIVER - Bile Duct Hyperplasia; LIVER - Vacuolization,  
Hepatocellular; LIVER - Biliary Fibrosis; LIVER -  
Congestion

TESTES - Bilateral, Decreased in size, Mild

TESTES - Degeneration, Seminiferous Tubule

Animal ID: 506  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

SPLEEN - Enlarged, Moderate

Related Histopathology:

SPLEEN - No Corollary change detected

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 506  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

LIVER - Foci, 1 to 3mm in diameter, >5, Round, Red,  
Enlarged, Moderate

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Vacuolization,  
Hepatocellular; LIVER - Biliary Fibrosis; LIVER -  
Inflammation, Chronic

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Pigmentation, NOS

PITUITARY - Mass, 4x3x2 mm, Irregular, Soft, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 507  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 619

Reference to Necropsy Record:

Related Histopathology:

SPLEEN - Enlarged, 97x25x14 mm

SPLEEN - Mononuclear Cell Leukemia

TESTES - Bilateral, Decreased in size, 15x6x5 mm,  
15x8x5 mm

TESTES - Degeneration, Seminiferous Tubule

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan, Found at trimming

TESTES - Interstitial Cell Adenoma, Multiple

HEART - Left Atrium, Mass, 6x6x3 mm, Irregular, Firm,  
Tan, Found at trimming

HEART - Thrombus

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 7  
SEX: MALE

Animal ID: 508  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 11mm in diameter, >5,  
Irregular, Firm, Tan

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Mass, 5x4x2 mm, Irregular, Soft, Brown

PITUITARY - Adenoma, Pars Distalis

SKIN - Hind Feet, Ulceration, Irregular, Firm,  
(Right) 4x2x2 mm, Red; (Left) 7x6x3 mm, Tan

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

Animal ID: 509  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 651

Reference to Necropsy Record:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White, Found at trimming

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 510  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

TESTES - Bilateral, Masses, >5, Dark Red, White,  
(Right) 20x10x8 mm; (Left) 30x15x11 mm

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

SPLEEN - Enlarged, 39x10x6 mm

SPLEEN - Hyperplasia, Lymphocytic; SPLEEN -  
Hyperplasia, Erythroid Cell

SKIN - Rear Feet, Ulceration, (Right) 4x3x0.5 mm, Red,  
Dark Red; (Left) 2x2x0.5 mm, Tan

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

LIVER - All Lobes, Mottled

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Necrosis, Hepatocellular;  
LIVER - Biliary Fibrosis; LIVER - Inflammation,  
Chronic

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 510

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

MANDIBULAR LYMPH NODE - Discolored, Red

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Hemorrhage

TESTES - Left, Decreased in size, 15x7x5 mm

TESTES - Degeneration, Seminiferous Tubule

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 541  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

SKIN - Subcutaneous, Mass, 10x5x2 mm, Irregular, Soft, Red

Related Histopathology:

SKIN - Hematocyst

TESTES - Bilateral, Mass, 1 to 5mm in diameter, >5, Irregular, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY - Mineralization, NOS, Medulla

LIVER - Mottled, Moderate

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic Focus, Multiple; LIVER - Biliary Fibrosis

Animal ID: 542  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR LYMPH NODE - Hemorrhage

KIDNEY - Pitted, Mild

KIDNEY - Chronic Progressive Nephropathy; KIDNEY - Pigmentation, NOS

TESTES - Masses, 1 to 5mm in diameter, >5, Firm, Tan, Red

TESTES - Interstitial Cell Adenoma, Multiple

LIVER - Median Lobe, Focus, 1.5x1.5 mm, Dark Red

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic Focus, Multiple; LIVER - Basophilic Focus, Multiple; LIVER - Biliary Fibrosis

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 543  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 210

Reference to Necropsy Record:

URINARY BLADDER - Distension, 26mm in diameter, Fluid  
filled, Round

Related Histopathology:

URINARY BLADDER - Dilatation

Animal ID: 544  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

SKIN - Subcutaneous, On Throat, Mass, 65x47x38 mm,  
Irregular, Firm, Tan

Related Histopathology:

MAMMARY GLAND - Fibroadenoma

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

SPLEEN - Enlarged, 50x15x5 mm

SPLEEN - Mononuclear Cell Leukemia

PITUITARY - Mass, 4mm in diameter, Round, Dark Red

PITUITARY - Adenoma, Pars Distalis

TESTES - Left, Decreased in size, 12x8x4 mm

TESTES - Degeneration, Seminiferous Tubule

Animal ID: 545  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

SALIVARY GLAND - Left, Enlarged, Fluid filled,  
23x17x10 mm, Irregular, Soft, Tan

Related Histopathology:

SALIVARY GLAND - Fibrosarcoma

THYMUS - Decreased in size, 10x6x2 mm

THYMUS - Atrophy, NOS

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy

SPLEEN - Cysts, 1mm in diameter, >5, Round, Clear

SPLEEN - Cyst, Capsular

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 545  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Mass, 4x5x2 mm, Irregular, Soft, Red

PITUITARY - Cyst, NOS, Pars Distalis

SKIN - Subcutaneous, Mass, 2x3x1 mm, Irregular, Soft,  
Black

SKIN - Plasmacytosis, Lymph Node

ABDOMINAL CAVITY - Mass, 25x15x6 mm, Irregular, Firm,  
Yellow

ABDOMINAL CAVITY - Necrosis, Fat; ABDOMINAL CAVITY -  
Mineralization, NOS, Fat; ABDOMINAL CAVITY -  
Inflammation, Chronic

Animal ID: 546  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

THYMUS - Decreased in size, 5x6x1 mm

THYMUS - Atrophy, NOS

KIDNEY - Bilateral, Pitted, Severe, Pale, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Pigmentation, NOS

LIVER - Median Lobe, Mass, 12x12x6 mm, Irregular,  
Soft, Tan, Enlarged, Mild

LIVER - Hepatocellular Carcinoma

SPLEEN - Enlarged, Moderate

SPLEEN - Mononuclear Cell Leukemia

SPLEEN - Focus, 5x5 mm, Round, White

SPLEEN - Fibrosis

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

HEART - Discolored area, 3mm in diameter, Round, Red,  
Found at trimming

HEART - Degeneration, Myocardial; HEART -  
Mineralization, NOS

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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CORRELATION OF GROSS & MICRO  
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STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE  
-----

Animal ID: 547  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727  
-----

Reference to Necropsy Record:  
KIDNEY - Bilateral, Pitted, Moderate

Related Histopathology:  
KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Cytoplasmic Droplets; KIDNEY - Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Focus, 3mm in diameter, Round, Black

PITUITARY - Adenoma, Pars Distalis  
-----

Animal ID: 548  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727  
-----

Reference to Necropsy Record:  
TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, White

Related Histopathology:  
TESTES - Interstitial Cell Adenoma, Multiple

SPLEEN - Enlarged, 70x19x15 mm

SPLEEN - Mononuclear Cell Leukemia

KIDNEY - Pitted

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Pigmentation, NOS

LIVER - All Lobes, Foci, 0.5 to 1mm in diameter, >5

LIVER - Bile Duct Hyperplasia; LIVER - Biliary  
Fibrosis; LIVER - Lymphocytic Infiltrates

SKIN - Rear Feet, Ulceration, Irregular, Firm, Tan,  
(Right) 7x5x1 mm; (Left) 5x2x1 mm

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

PANCREAS - Mass, 2x3x1 mm, Irregular, Firm, Tan

PANCREAS - Islet Cell Adenoma  
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(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 549  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:  
KIDNEY - Bilateral, Pitted, Mild

Related Histopathology:  
KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Mineralization, NOS, Medulla; KIDNEY - Inflammation,  
Suppurative

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Mass, 5x4x2 mm, Irregular, Soft, Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 550  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:  
TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White; Right, Enlarged, 31x19x19 mm

Related Histopathology:  
TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 551  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:  
ESOPHAGUS - Dilatation, Moderate

Related Histopathology:  
ESOPHAGUS - No Corollary change detected

LUNGS - Right Lobe, Discoloration, Severe, Red

LUNGS - Bronchiolar Epithelial Hyperplasia; LUNGS -  
Inflammation, Chronic/Active

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

MESENTERY - Mass, 10x9x3 mm, Irregular, Hard, Yellow,  
Found at trimming

ABDOMINAL CAVITY - Necrosis, Fat; ABDOMINAL CAVITY -  
Mineralization, NOS, Fat; ABDOMINAL CAVITY -  
Inflammation, Chronic

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 551  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

THYMUS - Decreased in size, Severe

THYMUS - (Tissue unavailable)

LIVER - All Lobes, Mottled, Red and Tan

LIVER - Bile Duct Hyperplasia

INTESTINAL TRACT - Gas filled

INTESTINAL TRACT - No tissue taken

Animal ID: 553  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

SEMINAL VESICLES - Bilateral, Enlarged, 19x10x1 mm

SEMINAL VESICLES - Dilatation, Lumen

MANDIBULAR LYMPH NODE - Discolored, Red

MANDIBULAR LYMPH NODE - Plasmacytosis; MANDIBULAR  
LYMPH NODE - Hemorrhage

PITUITARY - Mass, 4x5x6 mm, Soft, Dark Red

PITUITARY - Carcinoma, Pars Distalis

Animal ID: 554  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 498

Reference to Necropsy Record:

Related Histopathology:

ABDOMINAL CAVITY - Mass, 85x70x45 mm, Irregular, Firm,  
Tan

ABDOMINAL CAVITY - Hemangioma; ABDOMINAL CAVITY -  
Necrosis; ABDOMINAL CAVITY - Inflammation, Suppurative

THYMUS - Decreased in size, 7x4x2 mm

THYMUS - (Tissue unavailable)

TESTES - Bilateral, Decreased in size, Moderate

TESTES - Degeneration, Seminiferous Tubule

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 555  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 703

Reference to Necropsy Record:  
SPLEEN - Enlarged, 70x17x10 mm

Related Histopathology:  
SPLEEN - Mononuclear Cell Leukemia

LIVER - Mottled, Tan and Red

LIVER - Bile Duct Hyperplasia; LIVER - Vacuolization,  
Hepatocellular; LIVER - Necrosis, Hepatocellular;  
LIVER - Biliary Fibrosis; LIVER - Lymphocytic  
Infiltrates

KIDNEY - Bilateral, Mottled, Black and Red

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Pigmentation, NOS

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5

TESTES - Interstitial Cell Adenoma, Multiple

TESTES - Left, Decreased in size, 15x6x6 mm

TESTES - Degeneration, Seminiferous Tubule

STOMACH - Foci, 0.5 to 5mm in diameter, >5, Irregular,  
Black, Found at trimming

STOMACH - Pigmentation, NOS, Glandular

Animal ID: 556  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 686

Reference to Necropsy Record:  
SKIN - Mass, 50x35x25 mm, Round, Soft, Red

Related Histopathology:  
SKIN - Fibroma

SKIN - Mass, 10x8x3 mm, Irregular, Hard, Tan

SKIN - Keratoacanthoma

LYMPH NODE - Enlarged, Irregular, White

MAMMARY GLAND - Galactocoele, Multiple

SPLEEN - Enlarged, 55x15x5 mm

SPLEEN - Mononuclear Cell Leukemia

LIVER - All Lobes, Mottled

LIVER - Bile Duct Hyperplasia; LIVER - Biliary  
Fibrosis; LIVER - Lymphocytic Infiltrates

STOMACH - Glandular, Foci, 2 to 7mm in diameter, >5,  
Round, Black, Found at trimming

STOMACH - Pigmentation, NOS, Glandular

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 556  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 686

Reference to Necropsy Record:

Related Histopathology:

INTESTINAL TRACT - Bloated

INTESTINAL TRACT - No tissue taken

Animal ID: 557  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:  
SPLEEN - Enlarged, 47x12x5 mm

Related Histopathology:  
SPLEEN - Hyperplasia, Erythroid Cell

LIVER - Left Lobe, Foci, 3mm in diameter, Round,  
Clear

LIVER - Degeneration, Cystic

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, White

TESTES - Interstitial Cell Adenoma, Multiple

Animal ID: 560  
Animal Fate: Found Dead

Pathologist: GRO  
Days on Test: 713

Reference to Necropsy Record:  
THYROID - Right, or Parathyroid, Enlarged, 7x5x5 mm,  
Round, Found at trimming

Related Histopathology:  
THYROID - Carcinoma, NOS

ADRENALS - Right, Enlarged, 10mm in diameter, Round,  
Found at trimming

ADRENALS - Pheochromocytoma

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular; Left, Enlarged, 28x18x12 mm, Found at  
trimming

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 561  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

TESTES - Bilateral, Masses, >5, Dark Red, White,  
(Right) 25x15x10 mm; (Left) 20x10x7 mm

Related Histopathology:

TESTES - Interstitial Cell Adenoma, Multiple

LIVER - All Lobes, Mottled

LIVER - Bile Duct Hyperplasia; LIVER - Biliary  
Fibrosis; LIVER - Eosinophilic Focus

PITUITARY - Mass, 3x6x1 mm, Dark Red

PITUITARY - Adenoma, Pars Distalis; PITUITARY -  
Hematocyst

TESTES - Left, Decreased in size, 15x6x6 mm

TESTES - Degeneration, Seminiferous Tubule

Animal ID: 562  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:

SKIN - Subcutaneous, Chest, Mass, 29x17x10 mm,  
Irregular, Firm, White

Related Histopathology:

SKIN - Fibroma

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, White; Right, Enlarged, 30x18x15 mm

TESTES - Interstitial Cell Adenoma, Multiple

KIDNEY - Pitted, Mild

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Mineralization, NOS, Medulla; KIDNEY - Pigmentation,  
NOS

THYROID - Left, Mass, 9x6x5 mm, Irregular, Firm, Tan,  
Red

THYROID - Follicular Cell Carcinoma

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 564

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 727

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Masses, 1 to 7mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

SKIN - Bilateral, Hind Feet, Ulcerations, Irregular,  
Firm, (Right) 6x5x2 mm, Tan; (Left) 7x4x2 mm,  
Tan-Green

SKIN - Ulceration; SKIN - Inflammation, Chronic/Active

SPLEEN - Focus, 6x5x2 mm, Irregular, Soft, Tan

SPLEEN - Fibrosis

PANCREAS - Mass, 10x6x2 mm, Irregular, Firm, Brown,  
Found at trimming

PERIPANCREATIC TISSUE - Necrosis, NOS, Fat;  
PERIPANCREATIC TISSUE - Inflammation, Chronic, Fat

Animal ID: 565

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

SKIN - Subcutaneous, Left Shoulder, Mass, 50x45x50 mm,  
Irregular, Firm, Red, Tan

SKIN - Fibroma

PREPUTIAL GLAND - Mass, 6x7x3 mm, Irregular, Firm,  
Tan

PREPUTIAL GLAND - Adenoma

TESTES - Masses, 1 to 5mm in diameter, >5, Irregular,  
Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 566  
Animal Fate: Moribund Sacrifice

Pathologist: GRO  
Days on Test: 611

Reference to Necropsy Record:  
SPLEEN - Enlarged, 88x20x12 mm

Related Histopathology:  
SPLEEN - Mononuclear Cell Leukemia

LIVER - All Lobes, Mottled, Red and Tan

LIVER - Bile Duct Hyperplasia; LIVER - Vacuolization,  
Hepatocellular; LIVER - Necrosis, Hepatocellular;  
LIVER - Hepatocytomegaly; LIVER - Biliary Fibrosis;  
LIVER - Lymphocytic Infiltrates; LIVER - Hemorrhage

LUNGS - Congestion, Moderate

LUNGS - Inflammation, Chronic/Active; LUNGS -  
Lymphocytic Infiltrates

Animal ID: 567  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 727

Reference to Necropsy Record:  
SPLEEN - Enlarged, 48x15x10 mm

Related Histopathology:  
SPLEEN - Hyperplasia, Lymphocytic

KIDNEY - Bilateral, Pitted, Moderate

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Inflammation, Suppurative

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Round, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

ABDOMINAL CAVITY - Mass, 30x15x15 mm, Irregular, Soft,  
Green

ABDOMINAL CAVITY - Necrosis, Fat; ABDOMINAL CAVITY -  
Inflammation, Chronic, Fat

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 2 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 568  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 724

Reference to Necropsy Record:

Related Histopathology:

THYMUS - Foci, 1 to 3mm in diameter, >5, Red

THYMUS - Atrophy, NOS

LIVER - All Lobes, Foci, 1 to 3mm in diameter, >5,  
Round, Red, Discoloration, Mottled

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Biliary Fibrosis; LIVER -  
Degeneration, Cystic; LIVER - Lymphocytic Infiltrates

SPLEEN - Enlarged, 83x20x13 mm

SPLEEN - Mononuclear Cell Leukemia

KIDNEY - Bilateral, Discoloration, Mottled

KIDNEY - Chronic Progressive Nephropathy; KIDNEY -  
Mineralization, NOS, Medulla

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, Tan

TESTES - Interstitial Cell Adenoma, Multiple

PITUITARY - Foci, Pinpoint, 2, Round, Red

PITUITARY - Hyperplasia, NOS, Pars Distalis

Animal ID: 570  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 730

Reference to Necropsy Record:

Related Histopathology:

KIDNEY - Bilateral, Pitted, Mild

KIDNEY - Chronic Progressive Nephropathy

TESTES - Bilateral, Masses, 1 to 5mm in diameter, >5,  
Irregular, Firm, White

TESTES - Interstitial Cell Adenoma, Multiple

SPLEEN - Enlarged, 40x14x10 mm

SPLEEN - Fibrosis

LIVER - Foci, Round, Red, (Left Lobe) 2mm in diameter,  
(Median Lobe) 1mm in diameter

LIVER - Bile Duct Hyperplasia; LIVER - Eosinophilic  
Focus, Multiple; LIVER - Basophilic Focus, Multiple;  
LIVER - Necrosis, Hepatocellular; LIVER - Biliary  
Fibrosis; LIVER - Inflammation, Chronic

(END OF REPORT)

APPENDIX I

CHEMICAL ANALYSES

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 1				
300	Top	272	279	2.52
	Middle	283		1.23
	Bottom	283		1.29
60	Top	55.4	55.6	0.35
	Middle	54.3		2.37
	Bottom	57.1		2.72
5	Top	5.26	5.03	4.48
	Middle	4.79		4.73
	Bottom	5.04		0.25
WEEK 2				
300	Top	301	304	1.00
	Middle	299		1.54
	Bottom	312		2.55
60	Top	61.4	61.6	0.33
	Middle	63.1		2.50
	Bottom	60.2		2.17
5	Top	5.47	5.39	1.47
	Middle	5.14		4.67
	Bottom	5.57		3.19

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 3				
300	Top	280	276	1.19
	Middle	277		0.23
	Bottom	272		1.42
60	Top	55.1	59.6	7.59
	Middle	62.3		4.52
	Bottom	61.4		3.08
5	Top	4.85	4.93	1.55
	Middle	5.00		1.47
	Bottom	4.93		0.08
WEEK 4				
300	Top	331	310	6.76
	Middle	307		1.21
	Bottom	293		5.55
60	Top	57.7	58.6	1.52
	Middle	57.4		2.11
	Bottom	60.8		3.63
5	Top	5.08	5.17	1.64
	Middle	5.35		3.61
	Bottom	5.06		1.97



Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 5				
300	Top	312	302	3.29
	Middle	293		3.05
	Bottom	301		0.24
60	Top	59.3	57.1	3.75
	Middle	56.9		0.46
	Bottom	55.3		3.29
5	Top	5.16	5.24	1.56
	Middle	5.17		1.32
	Bottom	5.39		2.89
WEEK 6				
300	Top	295	305	3.08
	Middle	292		4.13
	Bottom	327		7.21
60	Top	62.7	62.8	0.20
	Middle	63.0		0.26
	Bottom	62.8		0.06
5	Top	4.91	5.12	4.16
	Middle	5.42		5.97
	Bottom	5.03		1.81

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 7				
300	Top	309	304	1.47
	Middle	302		0.61
	Bottom	302		0.86
60	Top	62.6	61.9	1.13
	Middle	62.4		0.88
	Bottom	60.6		2.01
5	Top	5.05	5.00	1.03
	Middle	5.00		0.05
	Bottom	4.95		0.98
WEEK 8				
300	Top	287	291	1.26
	Middle	288		0.88
	Bottom	297		2.14
60	Top	57.3	57.2	0.12
	Middle	58.1		1.45
	Bottom	56.4		1.57
5	Top	4.95	4.92	0.57
	Middle	4.95		0.66
	Bottom	4.86		1.23

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 9				
300	Top	276	290	4.60
	Middle	306		5.68
	Bottom	287		1.08
60	Top	59.4	60.1	1.27
	Middle	59.3		1.35
	Bottom	61.7		2.62
5	Top	4.83	4.96	2.74
	Middle	4.93		0.66
	Bottom	5.13		3.40
WEEK 10				
300	Top	305	308	0.88
	Middle	310		0.68
	Bottom	309		0.20
60	Top	55.3	54.8	0.94
	Middle	53.7		1.94
	Bottom	55.3		1.00
5	Top	5.13	5.07	1.26
	Middle	5.19		2.29
	Bottom	4.89		3.55

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 11				
300	Top	282	279	1.42
	Middle	273		2.00
	Bottom	280		0.58
60	Top	58.4	57.4	1.80
	Middle	58.0		1.02
	Bottom	55.8		2.82
5	Top	4.40	4.74	7.05
	Middle	5.07		7.10
	Bottom	4.74		0.05
WEEK 12				
300	Top	298	291	2.23
	Middle	284		2.64
	Bottom	292		0.41
60	Top	60.9	62.0	1.85
	Middle	63.7		2.68
	Bottom	61.5		0.82
5	Top	5.38	5.39	0.09
	Middle	5.23		2.89
	Bottom	5.55		2.98

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 13				
300	Top	311	307	1.20
	Middle	284		7.62
	Bottom	327		6.41
60	Top	60.9	63.2	3.64
	Middle	64.9		2.64
	Bottom	63.8		1.00
5	Top	4.63	4.86	4.82
	Middle	4.80		1.23
	Bottom	5.16		6.05
WEEK 14				
300	Top	323	323	0.12
	Middle	318		1.54
	Bottom	329		1.66
60	Top	59.6	60.3	1.12
	Middle	62.9		4.19
	Bottom	58.5		3.07
5	Top	5.29	5.22	1.19
	Middle	5.10		2.38
	Bottom	5.29		1.19

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 15				
300	Top	304	302	0.41
	Middle	302		0.14
	Bottom	302		0.28
60	Top	62.7	63.1	0.50
	Middle	63.7		1.08
	Bottom	62.7		0.59
5	Top	5.14	5.15	0.08
	Middle	4.83		6.19
	Bottom	5.47		6.26
WEEK 16				
300	Top	327	318	2.95
	Middle	315		1.08
	Bottom	312		1.87
60	Top	65.0	63.8	1.90
	Middle	61.4		3.74
	Bottom	65.0		1.84
5	Top	5.19	5.22	0.58
	Middle	5.17		0.98
	Bottom	5.30		1.56

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 17				
300	Top	288	295	2.48
	Middle	279		5.38
	Bottom	318		7.86
60	Top	61.7	61.1	1.02
	Middle	61.7		1.08
	Bottom	59.8		2.10
5	Top	5.16	4.81	7.38
	Middle	4.59		4.55
	Bottom	4.67		2.84
WEEK 18				
300	Top	296	302	1.84
	Middle	305		0.94
	Bottom	304		0.89
60	Top	57.5	54.9	4.60
	Middle	52.9		3.75
	Bottom	54.5		0.85
5	Top	4.96	4.73	4.87
	Middle	4.34		8.11
	Bottom	4.88		3.24

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 19				
300	Top	301	299	0.71
	Middle	294		1.49
	Bottom	301		0.79
60	Top	58.2	59.2	1.62
	Middle	61.9		4.47
	Bottom	57.5		2.86
5	Top	4.92	4.94	0.45
	Middle	4.85		1.75
	Bottom	5.05		2.20
WEEK 20				
300	Top	292	300	2.64
	Middle	304		1.32
	Bottom	304		1.32
60	Top	62.6	61.9	1.10
	Middle	61.6		0.48
	Bottom	61.5		0.61
5	Top	5.40	5.43	0.46
	Middle	5.41		0.39
	Bottom	5.47		0.85



Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 21				
300	Top	294	297	0.83
	Middle	298		0.63
	Bottom	297		0.21
60	Top	62.8	61.8	1.52
	Middle	61.3		0.82
	Bottom	61.4		0.70
5	Top	5.25	5.12	2.61
	Middle	5.16		0.81
	Bottom	4.94		3.43
WEEK 22				
300	Top	295	303	2.89
	Middle	304		0.29
	Bottom	311		2.60
60	Top	59.1	60.4	2.22
	Middle	60.0		0.65
	Bottom	62.2		2.87
5	Top	5.16	5.22	1.09
	Middle	5.35		2.45
	Bottom	5.15		1.35

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 23				
300	Top	296	300	1.12
	Middle	299		0.31
	Bottom	304		1.43
60	Top	64.2	63.5	1.16
	Middle	61.9		2.52
	Bottom	64.3		1.36
5	Top	5.33	5.23	1.82
	Middle	5.30		1.26
	Bottom	5.07		3.09
WEEK 24				
300	Top	302	299	1.14
	Middle	300		0.32
	Bottom	295		1.47
60	Top	62.8	62.1	1.12
	Middle	62.4		0.48
	Bottom	61.1		1.60
5	Top	5.10	5.18	1.49
	Middle	5.42		4.58
	Bottom	5.02		3.09

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 25				
300	Top	307	302	1.71
	Middle	301		0.21
	Bottom	297		1.50
60	Top	65.2	64.8	0.59
	Middle	65.5		1.04
	Bottom	63.7		1.63
5	Top	5.23	5.24	0.12
	Middle	5.27		0.52
	Bottom	5.22		0.41
WEEK 26				
300	Top	299	304	1.61
	Middle	310		2.13
	Bottom	302		0.52
60	Top	62.5	62.7	0.24
	Middle	64.2		2.51
	Bottom	61.2		2.28
5	Top	5.55	5.28	5.19
	Middle	5.29		0.19
	Bottom	5.00		5.38

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 27				
300	Top	293	294	0.56
	Middle	296		0.51
	Bottom	294		0.04
60	Top	66.2	64.0	3.49
	Middle	62.9		1.62
	Bottom	62.8		1.86
5	Top	5.30	5.45	2.80
	Middle	5.45		0.06
	Bottom	5.61		2.86
WEEK 28				
300	Top	293	295	0.44
	Middle	295		0.12
	Bottom	296		0.32
60	Top	64.3	64.5	0.25
	Middle	64.6		0.17
	Bottom	64.5		0.08
5	Top	5.30	5.31	0.23
	Middle	5.27		0.72
	Bottom	5.36		0.94

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 29				
300	Top	302	298	1.12
	Middle	302		1.42
	Bottom	291		2.54
60	Top	64.6	63.5	1.69
	Middle	63.0		0.74
	Bottom	62.9		0.95
5	Top	5.72	5.19	10.2
	Middle	5.02		3.24
	Bottom	4.83		6.99
WEEK 30				
300	Top	299	300	0.22
	Middle	314		4.69
	Bottom	287		4.47
60	Top	63.4	64.3	1.46
	Middle	63.7		1.06
	Bottom	66.0		2.52
5	Top	5.15	5.38	4.25
	Middle	5.44		1.18
	Bottom	5.55		3.07

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 31				
300	Top	301	296	1.66
	Middle	299		1.03
	Bottom	288		2.69
60	Top	61.1	64.1	4.74
	Middle	65.5		2.12
	Bottom	65.8		2.62
5	Top	5.17	5.26	1.79
	Middle	5.35		1.78
	Bottom	5.26		0.02
WEEK 32				
300	Top	308	301	2.43
	Middle	300		0.28
	Bottom	295		2.16
60	Top	63.8	64.2	0.58
	Middle	63.6		0.82
	Bottom	65.1		1.41
5	Top	5.13	5.08	0.97
	Middle	5.01		1.35
	Bottom	5.09		0.37

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 33				
300	Top	278	285	2.33
	Middle	280		1.72
	Bottom	297		4.06
60	Top	59.7	59.9	0.32
	Middle	61.0		1.85
	Bottom	59.0		1.53
5	Top	5.40	5.10	5.16
	Middle	5.00		2.16
	Bottom	5.00		3.00
WEEK 34				
300	Top	294	288	2.26
	Middle	299		3.88
	Bottom	270		6.14
60	Top	59.6	59.5	0.23
	Middle	58.9		0.96
	Bottom	59.9		0.73
5	Top	4.69	4.90	4.78
	Middle	4.76		3.20
	Bottom	5.32		7.89

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 35				
300	Top	333	309	7.73
	Middle	296		4.25
	Bottom	298		3.48
60	Top	62.4	61.2	1.93
	Middle	64.1		4.64
	Bottom	57.2		6.57
5	Top	4.79	4.95	3.12
	Middle	5.00		1.10
	Bottom	5.05		2.02
WEEK 36				
300	Top	298	297	0.35
	Middle	300		0.88
	Bottom	294		1.24
60	Top	57.3	59.4	3.54
	Middle	62.2		4.69
	Bottom	58.8		1.15
5	Top	5.10	5.00	1.41
	Middle	5.20		2.92
	Bottom	4.80		4.33



Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 37				
300	Top	292	303	3.66
	Middle	312		2.95
	Bottom	305		0.71
60	Top	63.0	59.6	5.72
	Middle	58.7		1.45
	Bottom	57.0		4.27
5	Top	5.00	4.80	2.71
	Middle	4.60		4.33
	Bottom	4.90		1.62
WEEK 38				
300	Top	275	288	4.76
	Middle	297		2.99
	Bottom	293		1.77
60	Top	59.4	58.5	1.58
	Middle	56.9		2.74
	Bottom	59.2		1.15
5	Top	5.10	5.10	0.28
	Middle	5.20		1.33
	Bottom	5.00		1.05

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 39				
300	Top	309	295	4.80
	Middle	292		1.04
	Bottom	284		3.76
60	Top	60.4	61.1	1.22
	Middle	61.5		0.62
	Bottom	61.5		0.59
5	Top	5.00	5.10	1.77
	Middle	5.20		1.88
	Bottom	5.10		0.11
WEEK 40				
300	Top	306	292	4.56
	Middle	285		2.67
	Bottom	287		1.89
60	Top	49.4	54.4	9.23
	Middle	51.0		6.17
	Bottom	62.8		15.4
5	Top	4.80	4.70	2.50
	Middle	4.70		1.85
	Bottom	4.50		4.34

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 41				
300	Top	318	306	4.05
	Middle	302		1.27
	Bottom	298		2.78
60	Top	62.4	61.3	1.84
	Middle	65.6		7.05
	Bottom	55.8		8.89
5	Top	4.70	5.10	7.47
	Middle	5.20		3.59
	Bottom	5.30		3.88
WEEK 42				
300	Top	305	302	0.87
	Middle	301		0.28
	Bottom	300		0.59
60	Top	61.5	61.8	0.50
	Middle	59.7		3.47
	Bottom	64.3		3.96
5	Top	5.00	5.12	2.20
	Middle	5.15		0.65
	Bottom	5.20		1.55

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 43				
300	Top	288	288	0.13
	Middle	287		0.43
	Bottom	289		0.30
60	Top	62.9	61.9	1.58
	Middle	61.5		0.62
	Bottom	61.3		0.96
5	Top	5.46	5.10	7.04
	Middle	4.91		3.63
	Bottom	4.92		3.41
WEEK 44				
300	Top	279	283	1.25
	Middle	292		3.44
	Bottom	277		2.20
60	Top	65.1	62.4	4.35
	Middle	61.4		1.54
	Bottom	60.6		2.82
5	Top	5.31	4.92	8.02
	Middle	4.74		3.69
	Bottom	4.70		4.34

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 45				
300	Top	294	288	2.08
	Middle	288		0.03
	Bottom	282		2.05
60	Top	59.5	60.9	2.23
	Middle	60.5		0.65
	Bottom	62.6		2.88
5	Top	4.93	5.17	4.60
	Middle	5.40		4.49
	Bottom	5.17		0.11
WEEK 46				
300	Top	284	296	3.89
	Middle	302		2.10
	Bottom	301		1.79
60	Top	56.2	57.9	2.93
	Middle	58.6		1.18
	Bottom	58.9		1.75
5	Top	5.22	5.16	1.25
	Middle	5.35		3.65
	Bottom	4.91		4.91

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 47				
300	Top	295	296	0.53
	Middle	277		6.39
	Bottom	317		6.92
60	Top	61.8	59.1	4.57
	Middle	56.8		3.92
	Bottom	58.7		0.65
5	Top	4.84	4.87	1.51
	Middle	4.90		0.61
	Bottom	4.87		2.10
WEEK 48				
300	Top	295	292	0.80
	Middle	287		1.76
	Bottom	295		0.96
60	Top	61.4	59.0	4.06
	Middle	57.5		2.51
	Bottom	58.0		1.55
5	Top	4.97	4.88	1.77
	Middle	4.82		1.24
	Bottom	4.86		0.54

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 49				
300	Top	289	294	1.41
	Middle	303		3.23
	Bottom	288		1.83
60	Top	61.5	60.3	2.11
	Middle	59.0		2.17
	Bottom	60.3		0.06
5	Top	5.08	5.00	1.60
	Middle	4.56		8.82
	Bottom	5.36		7.22
WEEK 50				
300	Top	289	290	0.45
	Middle	300		3.24
	Bottom	282		2.79
60	Top	57.2	59.3	3.62
	Middle	61.6		3.86
	Bottom	59.2		0.25
5	Top	4.74	4.90	3.33
	Middle	4.88		0.56
	Bottom	5.09		3.89

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 51				
300	Top	301	295	1.76
	Middle	293		0.63
	Bottom	292		1.13
60	Top	61.1	59.8	2.17
	Middle	59.9		0.27
	Bottom	58.3		2.44
5	Top	4.95	4.93	0.49
	Middle	4.89		0.91
	Bottom	4.95		0.42
WEEK 52				
300	Top	296	287	3.20
	Middle	287		0.03
	Bottom	278		3.24
60	Top	59.1	59.4	0.59
	Middle	60.0		1.02
	Bottom	59.2		0.43
5	Top	5.00	4.85	3.11
	Middle	4.94		1.86
	Bottom	4.61		4.97



Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 53				
300	Top	299	300	0.41
	Middle	318		5.85
	Bottom	284		5.44
60	Top	61.6	62.1	0.82
	Middle	61.3		1.24
	Bottom	63.3		2.06
5	Top	5.00	4.95	1.15
	Middle	5.20		5.10
	Bottom	4.64		6.25
WEEK 54				
300	Top	300	297	0.99
	Middle	310		4.32
	Bottom	281		5.31
60	Top	57.6	59.0	2.36
	Middle	58.4		1.06
	Bottom	61.0		3.42
5	Top	4.62	4.80	3.78
	Middle	5.28		9.88
	Bottom	4.51		6.10

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 55				
300	Top	308	304	1.32
	Middle	288		5.22
	Bottom	315		3.89
60	Top	61.0	60.3	1.15
	Middle	64.2		6.49
	Bottom	55.7		7.63
5	Top	5.12	5.03	1.90
	Middle	5.10		1.39
	Bottom	4.86		3.28
WEEK 56				
300	Top	303	301	0.85
	Middle	301		0.04
	Bottom	298		0.88
60	Top	62.0	60.9	1.72
	Middle	63.1		3.65
	Bottom	57.6		5.37
5	Top	4.73	4.89	3.33
	Middle	4.90		0.19
	Bottom	5.05		3.13

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 57				
300	Top	282	292	3.39
	Middle	300		2.77
	Bottom	294		0.61
60	Top	55.1	59.0	6.53
	Middle	62.4		5.74
	Bottom	59.5		0.79
5	Top	4.74	4.77	0.60
	Middle	4.84		1.49
	Bottom	4.73		0.89
WEEK 58				
300	Top	310	307	0.94
	Middle	297		3.26
	Bottom	314		2.32
60	Top	64.0	63.0	1.49
	Middle	62.1		1.43
	Bottom	63.0		0.05
5	Top	4.74	4.71	0.70
	Middle	4.64		1.51
	Bottom	4.74		0.82

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 59				
300	Top	327	313	4.46
	Middle	321		2.45
	Bottom	291		6.91
60	Top	62.8	61.8	1.71
	Middle	58.4		5.54
	Bottom	64.2		3.83
5	Top	5.01	4.87	2.91
	Middle	4.86		0.08
	Bottom	4.73		2.83
WEEK 60				
300	Top	313	316	1.08
	Middle	315		0.52
	Bottom	321		1.61
60	Top	56.0	58.2	3.74
	Middle	58.6		0.70
	Bottom	60.0		3.04
5	Top	5.03	4.92	2.16
	Middle	5.17		5.15
	Bottom	4.56		7.31

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 61				
300	Top	303	308	1.58
	Middle	307		0.35
	Bottom	314		1.94
60	Top	64.8	62.1	4.23
	Middle	62.1		0.02
	Bottom	59.5		4.25
5	Top	4.87	5.08	4.16
	Middle	5.14		1.06
	Bottom	5.24		3.10
WEEK 62				
300	Top	317	314	0.84
	Middle	317		0.88
	Bottom	309		1.71
60	Top	65.5	60.3	8.65
	Middle	57.7		4.34
	Bottom	57.7		4.32
5	Top	4.79	4.99	4.07
	Middle	5.32		6.65
	Bottom	4.86		2.58

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 63				
300	Top	298	300	0.67
	Middle	296		1.24
	Bottom	306		1.92
60	Top	58.3	59.3	1.73
	Middle	60.4		1.82
	Bottom	59.3		0.09
5	Top	5.03	5.01	0.32
	Middle	4.88		2.54
	Bottom	5.12		2.22
WEEK 64				
300	Top	308	299	3.05
	Middle	290		3.19
	Bottom	300		0.13
60	Top	65.6	54.8	19.77
	Middle	49.4		9.90
	Bottom	49.4		9.88
5	Top	4.71	4.72	0.23
	Middle	4.67		1.06
	Bottom	4.78		1.29

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 65				
300	Top	324	317	2.31
	Middle	311		1.83
	Bottom	315		0.48
60	Top	61.9	60.1	2.97
	Middle	55.2		8.17
	Bottom	63.3		5.20
5	Top	5.05	4.99	1.20
	Middle	5.09		1.83
	Bottom	4.84		3.03
WEEK 66				
300	Top	278	280	0.83
	Middle	286		2.16
	Bottom	277		1.33
60	Top	60.3	58.0	3.91
	Middle	56.2		3.08
	Bottom	57.5		0.82
5	Top	4.60	4.83	4.69
	Middle	4.59		5.00
	Bottom	5.30		9.69

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 67				
300	Top	286	291	1.76
	Middle	296		1.79
	Bottom	291		0.03
60	Top	59.3	58.9	0.72
	Middle	59.3		0.62
	Bottom	58.1		1.34
5	Top	5.26	5.18	1.66
	Middle	4.95		4.40
	Bottom	5.32		2.75
WEEK 68				
300	Top	310	300	3.06
	Middle	307		2.34
	Bottom	284		5.40
60	Top	61.3	59.3	3.30
	Middle	59.3		0.03
	Bottom	57.3		3.33
5	Top	4.94	4.96	0.33
	Middle	4.98		0.41
	Bottom	4.96		0.08



Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 69				
300	Top	298	297	0.33
	Middle	302		1.75
	Bottom	291		2.08
60	Top	58.3	59.4	1.81
	Middle	58.6		1.31
	Bottom	61.2		3.12
5	Top	5.10	5.05	0.86
	Middle	5.10		0.92
	Bottom	4.96		1.78
WEEK 70				
300	Top	312	314	0.53
	Middle	314		0.06
	Bottom	316		0.58
60	Top	56.5	57.8	2.27
	Middle	58.9		1.96
	Bottom	58.0		0.31
5	Top	5.23	4.97	5.38
	Middle	4.72		5.03
	Bottom	4.95		0.35

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 71				
300	Top	318	308	2.92
	Middle	298		3.45
	Bottom	310		0.53
60	Top	58.6	58.7	0.05
	Middle	59.5		1.47
	Bottom	57.8		1.43
5	Top	5.00	5.20	3.78
	Middle	5.35		2.96
	Bottom	5.24		0.82
WEEK 72				
300	Top	309	305	1.35
	Middle	296		2.72
	Bottom	309		1.36
60	Top	58.4	59.0	0.92
	Middle	61.1		3.67
	Bottom	57.3		2.75
5	Top	4.79	5.22	8.23
	Middle	5.49		5.14
	Bottom	5.39		3.09

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 73				
300	Top	318	305	4.13
	Middle	314		2.88
	Bottom	284		7.01
60	Top	58.5	58.8	0.42
	Middle	59.4		0.97
	Bottom	58.5		0.56
5	Top	5.21	5.12	1.72
	Middle	4.93		3.75
	Bottom	5.23		2.03
WEEK 74				
300	Top	298	301	1.03
	Middle	297		1.25
	Bottom	308		2.27
60	Top	57.2	58.8	2.65
	Middle	59.1		0.68
	Bottom	59.9		1.97
5	Top	5.21	4.92	6.02
	Middle	4.88		0.69
	Bottom	4.65		5.33

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 75				
300	Top	306	309	0.93
	Middle	306		0.76
	Bottom	314		1.68
60	Top	56.2	56.9	1.19
	Middle	55.4		2.61
	Bottom	59.1		3.81
5	Top	4.66	4.67	0.14
	Middle	4.61		1.26
	Bottom	4.74		1.40
WEEK 76				
300	Top	298	295	1.17
	Middle	299		1.24
	Bottom	288		2.41
60	Top	61.8	59.9	3.13
	Middle	62.0		3.56
	Bottom	55.9		6.69
5	Top	4.51	4.87	7.41
	Middle	4.98		2.29
	Bottom	5.12		5.13

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 77				
300	Top	307	306	0.30
	Middle	298		2.60
	Bottom	313		2.30
60	Top	63.3	59.5	6.27
	Middle	59.4		0.30
	Bottom	56.0		5.98
5	Top	4.83	4.99	3.22
	Middle	4.93		1.21
	Bottom	5.21		4.42
WEEK 78				
300	Top	310	310	0.01
	Middle	303		2.39
	Bottom	317		2.40
60	Top	62.4	62.8	0.71
	Middle	63.9		1.71
	Bottom	62.2		1.00
5	Top	5.11	4.87	5.07
	Middle	4.88		0.19
	Bottom	4.61		5.25

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 79				
300	Top	320	312	2.74
	Middle	301		3.29
	Bottom	313		0.55
60	Top	62.9	60.1	4.57
	Middle	60.6		0.78
	Bottom	56.9		5.35
5	Top	4.55	4.78	4.93
	Middle	4.79		0.18
	Bottom	5.01		4.76
WEEK 80				
300	Top	316	300	5.34
	Middle	296		1.29
	Bottom	287		4.05
60	Top	56.8	56.9	0.20
	Middle	57.4		0.89
	Bottom	56.5		0.70
5	Top	5.06	4.75	6.58
	Middle	4.48		5.69
	Bottom	4.70		0.89

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 81				
300	Top	305	306	0.29
	Middle	298		2.51
	Bottom	315		2.80
60	Top	63.5	62.1	2.19
	Middle	59.7		3.86
	Bottom	63.1		1.67
5	Top	4.62	4.65	0.72
	Middle	4.65		0.11
	Bottom	4.69		0.83
WEEK 82				
300	Top	316	307	3.20
	Middle	304		0.92
	Bottom	300		2.28
60	Top	58.5	57.3	2.17
	Middle	58.0		1.21
	Bottom	55.3		3.38
5	Top	4.65	4.63	0.35
	Middle	4.57		1.42
	Bottom	4.68		1.07

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 83				
300	Top	301	302	0.19
	Middle	292		3.36
	Bottom	312		3.55
60	Top	61.7	59.5	3.65
	Middle	58.5		1.64
	Bottom	58.3		2.01
5	Top	4.51	4.55	0.97
	Middle	4.56		0.26
	Bottom	4.58		0.71
WEEK 84				
300	Top	309	311	0.80
	Middle	315		1.20
	Bottom	310		0.40
60	Top	58.9	59.5	1.05
	Middle	57.4		3.63
	Bottom	62.3		4.68
5	Top	4.76	4.82	1.23
	Middle	4.80		0.47
	Bottom	4.90		1.70



Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 85				
300	Top	320	306	4.66
	Middle	288		5.69
	Bottom	309		1.03
60	Top	59.4	55.4	7.18
	Middle	57.3		3.37
	Bottom	49.6		10.5
5	Top	5.33	5.06	5.21
	Middle	5.03		0.68
	Bottom	4.83		4.53
WEEK 86				
300	Top	296	297	0.17
	Middle	302		1.69
	Bottom	292		1.52
60	Top	54.8	56.4	2.75
	Middle	54.6		3.23
	Bottom	59.8		5.99
5	Top	4.61	4.79	3.84
	Middle	4.65		2.99
	Bottom	5.12		6.83

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 87				
300	Top	317	310	2.49
	Middle	297		4.04
	Bottom	314		1.55
60	Top	56.7	57.7	1.83
	Middle	60.8		5.27
	Bottom	55.7		3.44
5	Top	4.61	4.76	3.15
	Middle	5.02		5.38
	Bottom	4.66		2.24
WEEK 88				
300	Top	318	316	0.41
	Middle	315		0.52
	Bottom	317		0.10
60	Top	59.6	57.8	3.05
	Middle	62.7		8.46
	Bottom	51.2		11.5
5	Top	5.01	5.01	0.12
	Middle	5.04		0.67
	Bottom	4.97		0.79

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 89				
300	Top	301	311	3.02
	Middle	312		0.22
	Bottom	320		2.80
60	Top	60.0	61.6	2.67
	Middle	64.5		4.56
	Bottom	60.5		1.89
5	Top	5.23	5.05	3.51
	Middle	5.00		1.00
	Bottom	4.93		2.51
WEEK 90				
300	Top	300	301	0.37
	Middle	283		5.99
	Bottom	320		6.37
60	Top	55.6	60.3	7.86
	Middle	63.7		5.70
	Bottom	61.6		2.16
5	Top	4.84	4.83	0.07
	Middle	4.72		2.22
	Bottom	4.94		2.15

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 91				
300	Top	319	310	2.91
	Middle	300		3.24
	Bottom	311		0.32
60	Top	58.1	59.4	2.14
	Middle	56.5		4.92
	Bottom	63.6		7.06
5	Top	4.93	4.96	0.66
	Middle	5.10		2.89
	Bottom	4.85		2.23
WEEK 92				
300	Top	294	288	2.16
	Middle	290		0.83
	Bottom	279		2.99
60	Top	60.3	58.3	3.43
	Middle	59.1		1.51
	Bottom	55.4		4.94
5	Top	5.16	5.11	1.03
	Middle	5.01		1.86
	Bottom	5.15		0.84

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 93				
300	Top	305	306	0.32
	Middle	313		2.25
	Bottom	300		1.93
60	Top	62.7	59.3	5.74
	Middle	57.1		3.79
	Bottom	58.2		1.96
5	Top	4.61	4.70	2.04
	Middle	4.84		2.93
	Bottom	4.66		0.89
WEEK 94				
300	Top	296	291	2.03
	Middle	280		3.55
	Bottom	295		1.53
60	Top	57.8	58.6	1.32
	Middle	60.3		3.04
	Bottom	57.6		1.72
5	Top	5.16	4.71	9.49
	Middle	4.48		4.82
	Bottom	4.49		4.67

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 95				
300	Top	295	297	0.66
	Middle	294		0.75
	Bottom	301		1.41
60	Top	64.4	61.4	4.86
	Middle	58.1		5.47
	Bottom	61.8		0.61
5	Top	5.25	5.20	1.02
	Middle	5.24		0.83
	Bottom	5.10		1.85
WEEK 96				
300	Top	306	302	1.23
	Middle	298		1.34
	Bottom	303		0.11
60	Top	53.5	53.6	0.20
	Middle	54.1		0.95
	Bottom	53.2		0.75
5	Top	5.14	5.19	0.82
	Middle	5.16		0.41
	Bottom	5.25		1.24

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 97				
300	Top	286	291	1.62
	Middle	297		1.87
	Bottom	290		0.24
60	Top	56.0	56.6	1.09
	Middle	56.2		0.81
	Bottom	57.7		1.91
5	Top	5.07	5.09	0.55
	Middle	5.22		2.52
	Bottom	4.99		1.97
WEEK 98				
300	Top	302	302	0.18
	Middle	299		0.93
	Bottom	304		0.76
60	Top	52.6	53.5	1.69
	Middle	52.7		1.66
	Bottom	55.3		3.35
5	Top	4.49	4.53	0.76
	Middle	4.56		0.70
	Bottom	4.53		0.06

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 99				
300	Top	289	291	0.66
	Middle	288		1.00
	Bottom	295		1.66
60	Top	55.9	57.5	2.78
	Middle	58.2		1.26
	Bottom	58.3		1.51
5	Top	5.18	5.03	2.89
	Middle	4.99		0.86
	Bottom	4.93		2.03
WEEK 100				
300	Top	293	296	0.74
	Middle	297		0.53
	Bottom	296		0.21
60	Top	54.3	56.0	3.04
	Middle	54.4		2.98
	Bottom	59.4		6.02
5	Top	4.46	4.74	5.85
	Middle	4.60		2.94
	Bottom	5.15		8.79



Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 101				
300	Top	301	298	0.92
	Middle	301		0.88
	Bottom	293		1.79
60	Top	63.8	62.6	1.98
	Middle	60.3		3.72
	Bottom	63.7		1.74
5	Top	4.60	4.65	1.07
	Middle	4.50		3.31
	Bottom	4.86		4.37
WEEK 102				
300	Top	304	303	0.39
	Middle	304		0.53
	Bottom	300		0.92
60	Top	60.9	61.2	0.38
	Middle	62.4		2.04
	Bottom	60.2		1.66
5	Top	5.33	5.05	5.69
	Middle	4.90		2.79
	Bottom	4.90		2.90

Determination of Homogeneity  
of 1,3,5-Trinitrobenzene in the Diet

Target Diet Concentration (mg/kg)	Site of Sampling	Concentration by Analysis (mg/kg)	Mean Concentration (mg/kg)	Deviation from Mean (%)
WEEK 103				
300	Top	308	310	0.70
	Middle	309		0.35
	Bottom	313		1.05
60	Top	58.3	60.7	3.90
	Middle	60.7		0.07
	Bottom	63.1		3.97
5	Top	5.17	5.07	1.93
	Middle	5.24		3.41
	Bottom	4.80		5.34
WEEK 104				
300	Top	291	295	1.24
	Middle	296		0.31
	Bottom	298		0.93
60	Top	64.3	63.3	1.52
	Middle	63.3		0.06
	Bottom	62.4		1.46
5	Top	5.31	5.14	3.25
	Middle	5.35		3.98
	Bottom	4.77		7.23

# Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 1				
300	19 Aug 93	24 Aug 93	279	6.92
60	19 Aug 93	24 Aug 93	55.6	7.30
5	23 Aug 93	25 Aug 93	5.03	0.63
Week 2				
300	25 Aug 93	1 Sep 93	304	1.39
60	26 Aug 93	1 Sep 93	61.6	2.61
5	31 Aug 93	2 Sep 93	5.39	7.87
Week 3				
300	1 Sep 93	9 Sep 93	276	7.89
60	7 Sep 93	10 Sep 93	59.6	0.67
5	8 Sep 93	13 Sep 93	4.93	1.41
Week 4				
300	9 Sep 93	15 Sep 93	310	3.43
60	11 Sep 93	15 Sep 93	58.6	2.28
5	13 Sep 93	16 Sep 93	5.17	3.33
Week 5				
300	15 Sep 93	22 Sep 93	302	0.74
60	22 Sep 93	27 Sep 93	57.1	4.77
5	23 Sep 93	28 Sep 93	5.24	4.77

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 6				
300	27 Sep 93	29 Sep 93	305	1.55
60	28 Sep 93	1 Oct 93	62.8	4.72
5	1 Oct 93	5 Oct 93	5.12	2.37
Week 7				
300	4 Oct 93	4 Oct 93	304	1.43
60	5 Oct 93	4 Oct 93	61.9	3.13
5	7 Oct 93	4 Oct 93	5.00	0.01
Week 8				
300	8 Oct 93	14 Oct 93	291	3.01
60	13 Oct 93	15 Oct 93	57.2	4.59
5	14 Oct 93	18 Oct 93	4.92	1.65
Week 9				
300	19 Oct 93	22 Oct 93	290	3.45
60	20 Oct 93	22 Oct 93	60.1	0.22
5	21 Oct 93	25 Oct 93	4.96	0.76
Week 10				
300	25 Oct 93	28 Oct 93	308	2.63
60	26 Oct 93	2 Nov 93	54.8	8.69
5	28 Oct 93	4 Nov 93	5.07	1.39

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 11				
300	1 Nov 93	8 Nov 93	279	7.17
60	2 Nov 93	8 Nov 93	57.4	4.38
5	3 Nov 93	10 Nov 93	4.74	5.24
Week 12				
300	8 Nov 93	12 Nov 93	291	2.90
60	9 Nov 93	15 Nov 93	62.0	3.34
5	10 Nov 93	16 Nov 93	5.39	7.71
Week 13				
300	17 Nov 93	22 Nov 93	307	2.48
60	18 Nov 93	24 Nov 93	63.2	5.34
5	19 Nov 93	23 Nov 93	4.86	2.71
Week 14				
300	22 Nov 93	26 Nov 93	323	7.78
60	23 Nov 93	29 Nov 93	60.3	0.54
5	24 Nov 93	30 Nov 93	5.22	4.49
Week 15				
300	29 Nov 93	2 Dec 93	302	0.82
60	2 Dec 93	6 Dec 93	63.1	5.10
5	3 Dec 93	7 Dec 93	5.15	2.91

# Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 16				
300	6 Dec 93	9 Dec 93	318	5.99
60	8 Dec 93	13 Dec 93	63.8	6.33
5	9 Dec 93	13 Dec 93	5.22	4.47
Week 17				
300	15 Dec 93	21 Dec 93	295	1.64
60	16 Dec 93	21 Dec 93	61.1	1.76
5	17 Dec 93	21 Dec 93	4.81	3.82
Week 18				
300	20 Dec 93	29 Dec 93	302	0.58
60	21 Dec 93	29 Dec 93	54.9	8.42
5	22 Dec 93	29 Dec 93	4.73	5.47
Week 19				
300	20 Dec 93	6 Jan 94	299	0.44
60	21 Dec 93	6 Jan 94	59.2	1.33
5	22 Dec 93	6 Jan 94	4.94	1.25
Week 20				
300	4 Jan 94	13 Jan 94	300	0.14
60	5 Jan 94	13 Jan 94	61.9	3.13
5	6 Jan 94	13 Jan 94	5.43	8.54

# Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 21				
300	11 Jan 94	19 Jan 94	297	1.13
60	12 Jan 94	19 Jan 94	61.8	3.04
5	13 Jan 94	19 Jan 94	5.12	2.33
Week 22				
300	18 Jan 94	2 Feb 94	303	1.15
60	20 Jan 94	2 Feb 94	60.4	0.72
5	21 Jan 94	2 Feb 94	5.22	4.42
Week 23				
300	24 Jan 94	8 Feb 94	300	0.09
60	25 Jan 94	8 Feb 94	63.5	5.77
5	26 Jan 94	8 Feb 94	5.23	4.66
Week 24				
300	31 Jan 94	14 Feb 94	299	0.32
60	1 Feb 94	14 Feb 94	62.1	3.44
5	2 Feb 94	14 Feb 94	5.18	3.62
Week 25				
300	7 Feb 94	25 Feb 94	302	0.54
60	8 Feb 94	28 Feb 94	64.8	7.97
5	9 Feb 94	28 Feb 94	5.24	4.81

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 26				
300	14 Feb 94	3 Mar 94	304	1.26
60	16 Feb 94	3 Mar 94	62.7	4.43
5	17 Feb 94	3 Mar 94	5.28	5.61
Week 27				
300	21 Feb 94	2 Mar 94	294	1.92
60	23 Feb 94	3 Mar 94	64.0	6.61
5	24 Feb 94	7 Mar 94	5.45	9.00
Week 28				
300	28 Feb 94	8 Mar 94	295	1.80
60	2 Mar 94	10 Mar 94	64.5	7.46
5	3 Mar 94	14 Mar 94	5.31	6.17
Week 29				
300	7 Mar 94	29 Mar 94	298	0.59
60	9 Mar 94	16 Mar 94	63.5	5.86
5	10 Mar 94	15 Mar 94	5.19	3.81
Week 30				
300	14 Mar 94	29 Mar 94	300	0.03
60	15 Mar 94	23 Mar 94	64.3	7.23
5	17 Mar 94	23 Mar 94	5.38	7.62



### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 31				
300	21 Mar 94	30 Mar 94	296	1.31
60	23 Mar 94	31 Mar 94	64.1	6.88
5	24 Mar 94	31 Mar 94	5.26	5.20
Week 32				
300	28 Mar 94	1 Apr 94	301	0.35
60	29 Mar 94	4 Apr 94	64.2	6.92
5	30 Mar 94	7 Apr 94	5.08	1.51
Week 33				
300	5 Apr 94	13 Apr 94	285	4.99
60	6 Apr 94	13 Apr 94	59.9	0.13
5	7 Apr 94	14 Apr 94	5.10	2.66
Week 34				
300	11 Apr 94	14 Apr 94	288	4.07
60	12 Apr 94	15 Apr 94	59.5	0.90
5	13 Apr 94	15 Apr 94	4.90	1.55
Week 35				
300	18 Apr 94	19 Apr 94	309	2.99
60	19 Apr 94	20 Apr 94	61.2	2.07
5	20 Apr 94	20 Apr 94	4.95	1.09

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 36				
300	25 Apr 94	26 Apr 94	297	0.87
60	26 Apr 94	27 Apr 94	59.4	0.92
5	27 Apr 94	27 Apr 94	5.00	0.68
Week 37				
300	2 May 94	4 May 94	303	1.10
60	3 May 94	5 May 94	59.6	0.72
5	4 May 94	5 May 94	4.80	3.46
Week 38				
300	9 May 94	10 May 94	288	3.87
60	10 May 94	11 May 94	58.5	2.50
5	11 May 94	11 May 94	5.10	1.88
Week 39				
300	17 May 94	18 May 94	295	1.67
60	18 May 94	2 Jun 94	61.1	1.87
5	19 May 94	2 Jun 94	5.10	1.70
Week 40				
300	23 May 94	25 May 94	292	2.55
60	24 May 94	25 May 94	54.4	9.34
5	25 May 94	10 Jun 94	4.70	6.94

# Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 41				
300	31 May 94	9 Jun 94	306	2.02
60	1 Jun 94	8 Jun 94	61.3	2.09
5	2 Jun 94	10 Jun 94	5.10	1.34
Week 42				
300	6 Jun 94	9 Jun 94	302	0.72
60	7 Jun 94	14 Jun 94	61.8	3.05
5	8 Jun 94	20 Jun 94	5.12	2.33
Week 43				
300	13 Jun 94	20 Jun 94	288	4.04
60	14 Jun 94	24 Jun 94	61.9	3.14
5	16 Jun 94	22 Jun 94	5.10	1.97
Week 44				
300	20 Jun 94	24 Jun 94	283	5.76
60	21 Jun 94	24 Jun 94	62.4	3.99
5	22 Jun 94	29 Jun 94	4.92	1.65
Week 45				
300	28 Jun 94	5 Jul 94	288	4.10
60	29 Jun 94	6 Jul 94	60.9	1.43
5	30 Jun 94	6 Jul 94	5.17	3.33

# Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 46				
300	5 Jul 94	7 Jul 94	296	1.39
60	6 Jul 94	8 Jul 94	57.9	3.45
5	7 Jul 94	8 Jul 94	5.16	3.17
Week 47				
300	12 Jul 94	12 Jul 94	296	1.19
60	13 Jul 94	12 Jul 94	59.1	1.55
5	14 Jul 94	13 Jul 94	4.87	2.66
Week 48				
300	18 Jul 94	20 Jul 94	292	2.56
60	19 Jul 94	21 Jul 94	59.0	1.73
5	20 Jul 94	22 Jul 94	4.88	2.34
Week 49				
300	21 Jul 94	27 Jul 94	294	2.16
60	22 Jul 94	28 Jul 94	60.3	0.44
5	28 Jul 94	29 Jul 94	5.00	0.03
Week 50				
300	2 Aug 94	4 Aug 94	290	3.28
60	3 Aug 94	9 Aug 94	59.3	1.16
5	4 Aug 94	9 Aug 94	4.90	1.94

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 51				
300	10 Aug 94	11 Aug 94	295	1.55
60	11 Aug 94	12 Aug 94	59.8	0.36
5	12 Aug 94	16 Aug 94	4.94	1.39
Week 52				
300	17 Aug 94	25 Aug 94	287	4.29
60	18 Aug 94	25 Aug 94	59.4	0.95
5	19 Aug 94	1 Sep 94	4.85	3.07

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 53				
300	24 Aug 94	29 Aug 94	300	0.11
60	25 Aug 94	30 Aug 94	62.1	3.45
5	26 Aug 94	1 Sep 94	4.95	1.07
Week 54				
300	31 Aug 94	9 Sep 94	297	1.02
60	1 Sep 94	12 Sep 94	59.0	1.62
5	2 Sep 94	13 Sep 94	4.80	3.93
Week 55				
300	7 Sep 94	12 Sep 94	304	1.19
60	8 Sep 94	13 Sep 94	60.3	0.49
5	9 Sep 94	14 Sep 94	5.03	0.58
Week 56				
300	14 Sep 94	26 Sep 94	301	0.21
60	15 Sep 94	26 Sep 94	60.9	1.52
5	16 Sep 94	27 Sep 94	4.89	2.17
Week 57				
300	21 Sep 94	27 Sep 94	292	2.67
60	22 Sep 94	28 Sep 94	59.0	1.68
5	23 Sep 94	28 Sep 94	4.77	4.62

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 58				
300	28 Sep 94	29 Sep 94	307	2.27
60	29 Sep 94	6 Oct 94	63.0	5.03
5	30 Sep 94	7 Oct 94	4.71	5.87
Week 59				
300	5 Oct 94	7 Oct 94	313	4.38
60	6 Oct 94	11 Oct 94	61.8	2.99
5	6 Oct 94	14 Oct 94	4.87	2.69
Week 60				
300	12 Oct 94	24 Oct 94	316	5.46
60	13 Oct 94	24 Oct 94	58.2	3.01
5	14 Oct 94	25 Oct 94	4.92	1.62
Week 61				
300	17 Oct 94	31 Oct 94	308	2.59
60	18 Oct 94	31 Oct 94	62.1	3.54
5	18 Oct 94	1 Nov 94	5.08	1.68
Week 62				
300	25 Oct 94	7 Nov 94	314	4.68
60	26 Oct 94	7 Nov 94	60.3	0.45
5	26 Oct 94	4 Nov 94	4.99	0.18

# Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 63				
300	1 Nov 94	10 Nov 94	300	0.02
60	2 Nov 94	14 Nov 94	59.3	1.13
5	2 Nov 94	15 Nov 94	5.01	0.19
Week 64				
300	3 Nov 94	18 Nov 94	299	0.24
60	8 Nov 94	18 Nov 94	54.8	8.71
5	8 Nov 94	21 Nov 94	4.72	5.65
Week 65				
300	14 Nov 94	22 Nov 94	317	5.58
60	15 Nov 94	23 Nov 94	60.1	0.24
5	15 Nov 94	25 Nov 94	4.99	0.11
Week 66				
300	17 Nov 94	30 Nov 94	280	6.59
60	18 Nov 94	30 Nov 94	58.0	3.35
5	25 Nov 94	29 Nov 94	4.83	3.40
Week 67				
300	28 Nov 94	1 Dec 94	291	2.99
60	29 Nov 94	1 Dec 94	58.9	1.84
5	29 Nov 94	1 Dec 94	5.18	3.57



# Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 68				
300	5 Dec 94	13 Dec 94	300	0.11
60	6 Dec 94	12 Dec 94	59.3	1.14
5	6 Dec 94	12 Dec 94	4.96	0.81
Week 69				
300	12 Dec 94	22 Dec 94	297	1.03
60	13 Dec 94	22 Dec 94	59.4	1.02
5	13 Dec 94	23 Dec 94	5.05	1.09
Week 70				
300	19 Dec 94	27 Dec 94	314	4.62
60	20 Dec 94	27 Dec 94	57.8	3.71
5	20 Dec 94	28 Dec 94	4.97	0.65
Week 71				
300	27 Dec 94	4 Jan 94	308	2.83
60	27 Dec 94	4 Jan 94	58.7	2.24
5	28 Dec 94	5 Jan 94	5.20	3.97
Week 72				
300	3 Jan 95	9 Jan 95	305	1.52
60	4 Jan 95	9 Jan 95	59.0	1.74
5	6 Jan 95	10 Jan 95	5.22	4.48

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 73				
300	10 Jan 95	17 Jan 95	305	1.72
60	11 Jan 95	17 Jan 95	58.8	2.01
5	11 Jan 95	18 Jan 95	5.12	2.47
Week 74				
300	17 Jan 95	24 Jan 95	301	0.30
60	18 Jan 95	23 Jan 95	58.8	2.08
5	18 Jan 95	23 Jan 95	4.92	1.67
Week 75				
300	23 Jan 95	31 Jan 95	309	2.88
60	24 Jan 95	30 Jan 95	56.9	5.15
5	25 Jan 95	30 Jan 95	4.67	6.59
Week 76				
300	30 Jan 95	7 Feb 95	295	1.66
60	31 Jan 95	7 Feb 95	59.9	0.15
5	31 Jan 95	6 Feb 95	4.87	2.53
Week 77				
300	6 Feb 95	14 Feb 95	306	1.89
60	6 Feb 95	13 Feb 95	59.5	0.77
5	7 Feb 95	13 Feb 95	4.99	0.16

# Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 78				
300	13 Feb 95	22 Feb 95	310	3.35
60	14 Feb 95	21 Feb 95	62.8	4.67
5	14 Feb 95	21 Feb 95	4.87	2.67
Week 79				
300	15 Feb 95	28 Feb 95	312	3.88
60	16 Feb 95	27 Feb 95	60.1	0.21
5	17 Feb 95	27 Feb 95	4.78	4.32
Week 80				
300	27 Feb 95	3 Mar 95	300	0.11
60	27 Feb 95	2 Mar 95	56.9	5.11
5	28 Feb 95	2 Mar 95	4.75	5.06
Week 81				
300	1 Mar 95	13 Mar 95	306	2.06
60	2 Mar 95	13 Mar 95	62.1	3.48
5	3 Mar 95	13 Mar 95	4.65	6.96
Week 82				
300	14 Mar 95	21 Mar 95	307	2.20
60	15 Mar 95	21 Mar 95	57.3	4.53
5	15 Mar 95	21 Mar 95	4.63	7.32

# Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 83				
300	17 Mar 95	24 Mar 95	302	0.60
60	20 Mar 95	23 Mar 95	59.5	0.83
5	17 Mar 95	23 Mar 95	4.55	9.01
Week 84				
300	27 Mar 95	3 Apr 95	311	3.72
60	27 Mar 95	3 Apr 95	59.5	0.81
5	28 Mar 95	3 Apr 95	4.82	3.59
Week 85				
300	3 Apr 95	10 Apr 95	306	1.94
60	4 Apr 95	10 Apr 95	55.4	7.62
5	5 Apr 95	10 Apr 95	5.06	1.24
Week 86				
300	10 Apr 95	27 Apr 95	297	1.16
60	11 Apr 95	27 Apr 95	56.4	6.02
5	12 Apr 95	27 Apr 95	4.79	4.17
Week 87				
300	17 Apr 95	2 May 95	310	3.22
60	18 Apr 95	2 May 95	57.7	3.81
5	18 Apr 95	2 May 95	4.76	4.72

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 88				
300	24 Apr 95	3 May 95	316	5.47
60	25 Apr 95	3 May 95	57.8	3.59
5	25 Apr 95	3 May 95	5.01	0.12
Week 89				
300	26 Apr 95	9 May 95	311	3.61
60	27 Apr 95	8 May 95	61.6	2.74
5	28 Apr 95	8 May 95	5.05	1.08
Week 90				
300	1 May 95	10 May 95	301	0.40
60	2 May 95	10 May 95	60.3	0.52
5	2 May 95	10 May 95	4.83	3.36
Week 91				
300	15 May 95	19 May 95	310	3.39
60	16 May 95	19 May 95	59.4	0.98
5	16 May 95	19 May 95	4.96	0.84
Week 92				
300	22 May 95	26 May 95	288	4.02
60	23 May 95	26 May 95	58.3	2.90
5	23 May 95	26 May 95	5.11	2.13

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 93				
300	30 May 95	2 Jun 95	306	2.08
60	31 May 95	2 Jun 95	59.3	1.10
5	31 May 95	2 Jun 95	4.70	5.98
Week 94				
300	5 Jun 95	9 Jun 95	291	3.16
60	6 Jun 95	9 Jun 95	58.6	2.39
5	6 Jun 95	9 Jun 95	4.71	5.78
Week 95				
300	12 Jun 95	19 Jun 95	297	1.10
60	13 Jun 95	19 Jun 95	61.4	2.37
5	13 Jun 95	19 Jun 95	5.20	3.99
Week 96				
300	19 Jun 95	23 Jun 95	302	0.81
60	20 Jun 95	23 Jun 95	53.6	10.7
5	20 Jun 95	23 Jun 95	5.19	3.71
Week 97				
300	26 Jun 95	1 Jul 95	291	2.95
60	27 Jun 95	30 Jun 95	56.6	5.63
5	27 Jun 95	30 Jun 95	5.09	1.90

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 98				
300	28 Jun 95	7 Jul 95	302	0.58
60	29 Jun 95	7 Jul 95	53.5	10.8
5	30 Jun 95	7 Jul 95	4.53	9.44
Week 99				
300	5 Jul 95	13 Jul 95	291	3.16
60	6 Jul 95	13 Jul 95	57.5	4.23
5	7 Jul 95	13 Jul 95	5.03	0.66
Week 100				
300	10 Jul 95	20 Jul 95	296	1.46
60	11 Jul 95	20 Jul 95	56.0	6.62
5	11 Jul 95	20 Jul 95	4.74	5.28
Week 101				
300	24 Jul 95	31 Jul 95	298	0.64
60	27 Jul 95	31 Jul 95	62.6	4.32
5	27 Jul 95	31 Jul 95	4.65	6.96
Week 102				
300	31 Jul 95	4 Aug 95	303	0.86
60	1 Aug 95	3 Aug 95	61.2	1.96
5	1 Aug 95	3 Aug 95	5.05	0.90

### Analysis of Feed Mixtures

Target Diet Concentration (mg/kg)	Date Prepared	Date Analyzed	Concentration by Analysis (mg/kg)	% Error
Week 103				
300	8 Aug 95	12 Aug 95	310	3.39
60	9 Aug 95	11 Aug 95	60.7	1.19
5	9 Aug 95	11 Aug 95	5.07	1.42
Week 104				
300	10 Aug 95	18 Aug 95	295	1.67
60	11 Aug 95	17 Aug 95	63.3	5.56
5	14 Aug 95	17 Aug 95	5.14	2.82



## APPENDIX J

INTERIM SACRIFICE - 3 MONTHS

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
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6. AUTHOR(S) Tirumuru V. Reddy, F. B. Daniel, G. R. Olson, J. Torsella, B. Wiechman, G. Reddy				
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13. ABSTRACT Chronic toxic effects of 1,3,5-trinitrobenzene (TNB) in male and female Fischer rats were evaluated by feeding certified powdered laboratory chow diet supplemented with varied concentrations of TNB (0, 5, 60 and 300 mg/kg diet). This report discusses the ninety day sacrifice findings of this two year study. Food intake in all female groups was significantly reduced while terminal body weights were reduced in both sexes in high dose animals. The calculated average TNB consumption for females was 0.35, 3.72 and 17.93 mg/kg/day and 0.27, 3.21 and 15.17 mg/kg/day for males. An increase in the relative spleen weight of both sexes in the 300 mg/kg dose group was noted along with an increase in the 60 mg/kg female group. Relative kidney weights were increased in the 300 mg/kg dose group of both sexes while the relative brain (males), lungs (females) and liver (females) weights were elevated in this same dose group. Methemoglobin levels were increased in the 60 and 300 mg/kg groups of both sexes. Histopathological examinations suggested that the susceptible organs for TNB toxicity were kidneys (excessive hyaline droplets) in the 60 and 300 mg/kg male groups and the spleen (erythroid cell hyperplasia) in both sexes in these same dose groups.				
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### **Study Timetable:**

Study Initiation: August 17, 1993

Initiation of Dosing: August 30, 1993

Interim Necropsy: November 30 and December 1, 1993

## INTRODUCTION

Nitroaromatics, such as 1,3-dinitrobenzene (DNB), 1,3,5-trinitrobenzene (TNB), and N-methyl-N,2,4,6-tetranitroaniline (tetryl), have been detected as environmental contaminants of groundwater and soil near production sites and in some instances at military test grounds. TNB is formed as a by-product during 2,4,6-trinitrotoluene (TNT) production and can be formed through photochemical oxidative degradation of 2,4-dinitrotoluene a by-product released into the environment from TNT manufacturing (Burlinson, 1980; Spanggord et.al., 1982). TNB is not easily biodegradable, persists in the environment, eventually leaches out, and contaminates groundwater near waste disposal sites (Garman et.al., 1987). Exposure to TNB can occur through contact with wastewaters and soil at the original production sites and other plants devoted to munitions assembly which contain large quantities of these nitroaromatic compounds (Walsh and Jenkins, 1992).

Toxicity data on these compounds are limited. The oral LD<sub>50</sub> of DNB, TNB and tetryl were 59 mg/kg, 284 mg/kg and greater than 5 g/kg, respectively, in rats for combined sexes. TNB and tetryl were not toxic at 2 g/kg when applied to rabbit skin for 24 hours. However, the dermal LD<sub>50</sub> of DNB was 1.99 g/kg for combined sexes of rabbits. None of these compounds produced skin irritation but positive (DNB) and severe (TNB, tetryl) eye irritation potentials in rabbits were noted. The sensitization tests showed that DNB and tetryl are not skin sensitizers while TNB caused mild allergic reaction in guinea pigs (Fitzgerald et. al., 1992 a,b,c). Some of the toxicological effects of TNB are: formation of methemoglobin, testicular degeneration and reproductive failure, weight loss and anemia in hamsters, rats and mice. Neurological and hematological disorders have also been reported in dogs. DNB is toxic to humans; the estimated lethal dose range is 5-50 mg/kg and is readily absorbed through the skin (Von Burg, 1989). Tetryl was observed to be a powerful skin sensitizer in ammunition plant workers with dermatitis, liver atrophy, spleen effects, headaches, weight loss and respiratory irritation reported following exposure (U.S. EPA, 1990). Atmospheric concentration of 1.5 mg/m<sup>3</sup> or below did not produce systemic poisoning in persons working with tetryl. DNB, TNB and tetryl have been shown to be genotoxic in the Salmonella mutagenesis assay (McGregor et. al., 1989) while TNB and DNB have been shown to form adducts of blood proteins and tissue DNA in rats (Reddy et. al.; 1991, 1995).

### Objective of the Study

This study was conducted in order to evaluate the toxicity of 1,3,5-trinitrobenzene when administered in the diet for a two year period.

## MATERIALS AND METHODS

### Test Material Preparation

1,3,5-Trinitrobenzene powder (CAS #99-35-4) was supplied by the U.S. Army Biomedical Research and Development Laboratory. Analysis by HPLC revealed no detectable impurities. Certified powdered Purina Laboratory Chow 5002 was purchased (Ralston-Purina Co., St. Louis, MO) and stored at 4°C until used. First, 0.3 g of TNB was added to 50 g of powdered diet in a mortar and thoroughly ground with a pestle. Afterwards 250 g of the diet was added and mixed for 15 minutes followed by 350 g and mixed for an additional 15 minutes. Finally, the remaining diet (350 g) was added and mixed for 30 minutes in a mechanical mixer (Kitchen Aid, St. Joseph, MI) for uniform distribution of TNB in the diet. This was verified by determining the TNB concentration in the diet, taken from each of the 1 kg mixtures, by quantitative analysis done by HPLC. The premixed diet (0.3 g/kg) was further diluted with fresh powdered diet to obtain the desired TNB concentration in the lower dose groups. The diet feeders were changed twice a week.

Analyses of the TNB-feed mixtures were carried out on acetone extracts of the mixtures, utilizing a Waters 600E chromatography system (Waters, Milford, MA), equipped with a 490E programmable multiwavelength detector, operating at 245 nm. The entire chromatography system was interfaced with a Berthold HPLC computer program, Version 1.65 (Berthold, Nashua, NH). The TNB was eluted from a Zorbax C-8 column (9.4 mm x 25 cm) (MAC-DOD Analytical, Chadds Ford, PA) with a water-methanol gradient, at a flow rate of 3 ml/min. Working standards were prepared in Burdick and Jackson HPLC grade high purity methanol (Baxter, Oletz, OH).

### Animals and Maintenance

Male and female Fischer 344 rats, confirmed free of viral antibodies, bacteria and parasites, were obtained from Charles River Laboratories, Kingston, New York. The animals, 7-8 weeks old and weighing approximately 140-175 g when delivered, were held for 1 week in quarantine prior to initiation of treatment. The animals were housed in a temperature (22-23°C) and humidity (40-60%) controlled room on a 12:12 hour light:dark cycle. For the study, they were housed individually in polycarbonate cages and water was administered ad libitum. Animal identification was done using electronic implants (Bio Medic, Maywood, NJ) with the rats assigned to control and treatment groups according to a computer-generated set of random numbers. The weight variation of the animals of each sex used did not exceed  $\pm 2$  s.d. of the mean weight at the time of delivery. The cages were identified with a color-coded identification card indicating the animal and treatment group. All aspects of the study were conducted in compliance with the guidelines of the American Association for Accreditation of Laboratory Animal Care.

All rats were observed daily for physiological and behavioral responses as well as for mortality or morbidity. Food and water consumption were recorded twice weekly. Body weights were taken prior to the start of the study, once weekly during the study and at the final sacrifice.

### Experiment Groups

Group	Interim Sac. No. of Animals	Sex	mg TNB/kg diet
1	10	F	300
2	10	F	60
3	10	F	5
4	10	F	0
5	10	M	300
6	10	M	60
7	10	M	5
8	10	M	0

### Hematology and Clinical Chemistry

Hematology parameters were assessed using a Serono-Baker Hematology Analyzer, Model 9000 (Serono-Baker, Allentown, PA). Total red and white blood cell counts, platelet count, differential leukocyte count, hemoglobin, packed cell volume, reticulocytes, MCV, MCH, MCHC and Heinz bodies were measured and computed. Methemoglobin samples were analyzed on a IL 482 Co-Oximeter.

Clinical chemistry was performed using a COBAS Fara II centrifugal analyzer (Roche, Nutley, NJ) with a non-selective electrode module. Clinical chemistry analytes included sodium, potassium, total protein, albumin, calcium, phosphorus, total bilirubin, blood urea nitrogen, creatinine, alanine aminotransferase, aspartate aminotransferase, glucose and alkaline phosphatase.

### Statistical Evaluation

Males and females were considered separately in all statistical analyses. A one-factor (dose) analysis of variance (ANOVA) was used to analyze normally distributed measures: body weights, organ weights, organ weight ratios, food and water consumption, hematology and clinical chemistry. When a treatment effect was noted ( $p \leq 0.05$ , F-test) the difference between the control and the treatment groups was probed using a multiple comparison procedure (Dunnnett's or Tukey's test). Due to the high variability of some of the measures, a nonparametric analysis of variance, the Wilcoxon Rank Sum Test, was used where appropriate.

### Necropsy and Histopathology

Prior to necropsy, the animals were anesthetized with pentobarbital (60 mg/kg b.w., i. p.) and blood samples were collected via cardiac puncture after the body weight was recorded. Following euthanasia via exsanguination, all external surfaces, orifices, all organs, and the thoracic, abdominal and pelvic cavities were examined for gross lesions.

During necropsy the following tissues were weighed: brain, liver, spleen, kidneys, adrenals, lungs, thymus, testes w/epididymides, ovaries, and heart.

The following tissues were harvested from each animal and preserved in 10% neutral buffered formalin:

skin	colon
mandibular and	cecum
mesenteric lymph nodes	rectum
mammary glands	liver
thigh muscle	pancreas
sciatic nerve	spleen
sternum	kidneys
femur with marrow	adrenals
thymus	urinary bladder
trachea	seminal vesicles
lungs with bronchi	prostate
heart and aorta	testes, including epididymides
thyroid	ovaries
parathyroids	uterus
esophagus	nasal cavity with turbinates
stomach	brain
duodenum	pituitary
jejunum	preputial or clitoral glands
tongue	Zymbal's gland
salivary gland	spinal cord
ileum	

Subsequently, these tissues were trimmed, processed and embedded in paraffin. Blocks were sectioned at 5 $\mu$  and slides were prepared and stained with hematoxylin and eosin. All tissues were examined in the high dose and control groups of both sexes. The spleen, kidneys, lungs and liver were examined in the remaining groups.

Inflammatory and degenerative lesions were graded according to severity using a scale of one to four (minimal, mild, moderate or marked). Data were tabulated according to individual animal and summarized by group. In addition, the gross observations and microscopic diagnoses were correlated for each animal. Labcat histopathology software was used for data management.

## RESULTS

### Food and Water Consumption

Overall food and water consumption data are listed in Table 1. The food consumption data shows a significant decrease ( $p \leq 0.05$ ) in all female groups but not in any of the male groups. Water consumption was not significantly changed in females while the 60 and 300 mg/kg male groups were marginally increased.

Using the food consumption data, the average daily dose levels of TNB received by group is presented in Table 2.

### Body Weights, Organ Weights and Weight Ratios

Organ weights (heart, brain, spleen, adrenals, thymus, ovaries/testes, kidneys, lungs and liver) are given in Tables 3 (females) and 4 (males). Mean group values for organ to body weight ratios are present in Tables 5 (females) and 6 (males).

Significant decreases ( $p \leq 0.05$ ) from control terminal body weights were noted in both sexes in the 300 mg/kg group and the 60 mg/kg female group. The remaining groups did not display any changes.

Absolute organ weights were significantly ( $p \leq 0.05$ ) different from controls for the following:

- Kidneys - The 60 mg/kg male group was increased.
- Ovaries - The 5 mg/kg female group was increased.
- Spleen - The 300 mg/kg group of both sexes was increased along with the 60 mg/kg female group.
- Thymus - The 300 mg/kg male group was decreased.

Organ weights as a percent of the total body weight were significantly ( $p \leq 0.05$ ) different from controls for the following:

- Brain - The 300 mg/kg male group had an increased value.
- Spleen - The 300 mg/kg groups of both sexes had increased values along with the 60 mg/kg female group.
- Liver - The 300 mg/kg female group had an increased value.
- Lungs - Increased values were present in the 300 and 60 mg/kg female groups.
- Kidneys - The 300 mg/kg group of both sexes had increased values.
- Ovaries - The 5 mg/kg group had an increased value.

### Hematology

Hematology analyses performed were total white blood cell count (WBC), platelet count, red blood cell count (RBC), methemoglobin (MetHb), hemoglobin, hematocrit, reticulocytes, Heinz bodies, MCV, MCH, MCHC, and differential leukocyte count. Group data are summarized in Tables 7 and 8. There were no significant ( $p \leq 0.05$ ) differences between the treated groups and the control group for any of the analytes except for the following:



1. RBC: A decrease in total red cell count in the 60 and 300 mg/kg female groups and in the 300 mg/kg male group.
2. Hemoglobin: A decrease in the 60 and 300 mg/kg groups of both sexes.
3. Hematocrit: A decrease in the 60 and 300 mg/kg female groups in addition to the 300 mg/kg male group.
4. Platelets: An increase in both sexes in the 300 mg/kg group.
5. Reticulocytes: An increase in reticulocytes in both sexes in the 300 mg/kg group.
6. Methemoglobin: An increase in both sexes in the 60 and 300 mg/kg groups.
7. MCV: An increase in the 60 and 300 mg/kg male groups.
8. MCHC: A decrease in the 300 mg/kg female group only.

#### Clinical Chemistry

The following analytes were evaluated: glucose, blood urea nitrogen (BUN), creatinine, alkaline phosphatase (ALK phos), total protein, albumin, calcium, total bilirubin, aspartate aminotransferase (AST), alanine aminotransferase (ALT), sodium, potassium, and phosphorus. The mean group values for each analyte are compiled. The mean group values for each analyte are compiled in Tables 9 - 10. There were no significant ( $p \leq 0.05$ ) differences between the control and treated groups for any of the analytes except for the following:

1. Blood Urea Nitrogen: An increase in the male 300 mg/kg group.
2. Alkaline Phosphatase: A decrease in the 60 mg/kg male group.

#### Clinical Observations

There were no clinical observations that were treatment related.

#### Survival

There were no early deaths in any of the groups.

#### Gross Pathology

There were no treatment related gross observations present.

#### Histopathology

All tissues were histopathologically examined in control and high dose animals of both sexes while the spleen, liver, lungs and kidneys were examined in the remainder of the groups.

The kidneys of male rats in the 60 and 300 mg/kg dose groups exhibited an increased incidence of cortical tubular hyaline droplet deposition. Some of these droplets were large and irregular, resulting in a mild increase in tubular degeneration with a compensatory increase in tubular regeneration.

The spleen and bone marrow both featured minimal to mild erythroid cell hyperplasia with increased pigment deposition. This was evident in both sexes in the 300 mg/kg group. This same compensatory change (regenerative anemia) can be noted in multiple organs but only the spleen was examined in all the animals.

The remaining diagnoses as listed in the tables should be considered spontaneous for F-344 rats since their incidence or severity levels were low.

### **CONCLUSIONS**

Administration of 1,3,5-trinitrobenzene in the diet to Fischer 344 rats at various doses for ninety days resulted in the following biologically significant findings:

1. The relative organ weights of the spleen, liver, lungs and kidneys were increased in females administered 300 mg/kg while in males in this same group the spleen, brain and kidneys were increased. In the 60 mg/kg female group the spleen and lungs were increased.
2. Hemoglobin, hematocrit and red blood cell count were decreased in both sexes in the 300 mg/kg group while in the 60 mg/kg group these parameters were decreased in females but only the hemoglobin level was decreased in males.
3. Methemoglobin levels were increased in both sexes in the 60 and 300 mg/kg groups.
4. Erythroid cell hyperplasia was increased in the 300 mg/kg group of both sexes.
5. Excessive hyaline droplet deposition was apparent in cortical renal tubules of male rats in the 60 and 300 mg/kg groups.
6. Terminal body weights were reduced in both sexes in the 300 mg/kg group and the 60 mg/kg female group.
7. Food consumption was reduced in the 5, 60 and 300 mg/kg female groups while water consumption was increased in the 60 and 300 mg/kg male groups.

Table 1: Food and Water Consumption

Dose Groups (mg TNB/kg diet)	Food (g/kg b.w./day)	Water
Females		
300	60.8 ± 0.7*	88.2 ± 1.9
60	66.7 ± 0.5*	80.7 ± 1.5
5	58.5 ± 0.6*	85.9 ± 3.8
0	74.0 ± 0.6	81.3 ± 1.1
Males		
300	62.8 ± 0.4	86.2 ± 1.1*
60	65.0 ± 0.3	84.8 ± 1.4*
5	64.5 ± 0.7	80.9 ± 1.0
0	63.1 ± 1.0	77.3 ± 1.2

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Tukey's test.

Table 2: Daily Consumption of 1,3,5-Trinitrobenzene

Dose Groups (mg TNB/kg diet)	Calculated Dose (mg TNB/kg b.w.)	
	Females	Males
300	17.93 ± 0.36	15.17 ± 0.31
60	3.72 ± 0.07	3.21 ± 0.05
5	0.35 ± 0.01	0.27 ± 0.01
0	0.0 ± 0.0	0.0 ± 0.0

Mean ± Standard Error

Table 3: Organ Weights(grams)/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Kidneys	1.24 ± 0.02	1.23 ± 0.02	1.23 ± 0.02	1.26 ± 0.02
Lungs	0.91 ± 0.02	0.91 ± 0.03	0.89 ± 0.03	0.85 ± 0.02
Liver	4.70 ± 0.07	4.55 ± 0.06	4.51 ± 0.11	4.71 ± 0.11
Heart	0.59 ± 0.01	0.58 ± 0.01	0.61 ± 0.01	0.63 ± 0.02
Brain	1.69 ± 0.02	1.69 ± 0.03	1.70 ± 0.02	1.73 ± 0.01
Spleen	0.49 ± 0.01 *	0.45 ± 0.01 *	0.41 ± 0.01	0.41 ± 0.01
Adrenals	0.07 ± 0.00	0.07 ± 0.01	0.07 ± 0.00	0.06 ± 0.00
Thymus	0.20 ± 0.01	0.18 ± 0.01	0.21 ± 0.02	0.19 ± 0.01
Gonads	0.15 ± 0.01	0.13 ± 0.01	0.17 ± 0.01 *	0.13 ± 0.01

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 4: Organ Weights (grams)/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Kidneys	1.97 ± 0.07	2.22 ± 0.06*	2.05 ± 0.05	2.02 ± 0.03
Lungs	1.19 ± 0.07	1.28 ± 0.04	1.27 ± 0.03	1.22 ± 0.03
Liver *	8.15 ± 0.31	9.28 ± 0.25	8.54 ± 0.26	8.65 ± 0.16
Heart	0.85 ± 0.02	0.95 ± 0.02	0.95 ± 0.02	0.91 ± 0.03
Brain	1.81 ± 0.02	1.87 ± 0.03	1.85 ± 0.02	1.83 ± 0.02
Spleen	0.65 ± 0.02*	0.63 ± 0.01	0.59 ± 0.01	0.58 ± 0.01
Adrenals	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.00	0.06 ± 0.01
Thymus	0.23 ± 0.01*	0.32 ± 0.02	0.28 ± 0.02	0.30 ± 0.03
Gonads	4.43 ± 0.31	4.77 ± 0.29	4.70 ± 0.16	4.97 ± 0.23

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 5: Organ-to-Body Weight Ratios/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Body Weight (grams)	161.01 ± 2.13*	166.16 ± 1.51*	167.04 ± 2.38	174.91 ± 2.93
Kidneys (%)	0.77 ± 0.02*	0.74 ± 0.01	0.74 ± 0.01	0.72 ± 0.01
Lungs (%)	0.56 ± 0.01*	0.55 ± 0.02*	0.53 ± 0.02	0.49 ± 0.01
Liver (%)	2.92 ± 0.03*	2.74 ± 0.03	2.70 ± 0.05	2.69 ± 0.04
Heart (%)	0.37 ± 0.01	0.35 ± 0.01	0.37 ± 0.01	0.36 ± 0.01
Brain (%)	1.05 ± 0.03	1.02 ± 0.02	1.02 ± 0.01	0.99 ± 0.02
Spleen (%)	0.31 ± 0.00*	0.27 ± 0.01*	0.24 ± 0.00	0.23 ± 0.00
Adrenals (%)	0.04 ± 0.00	0.04 ± 0.01	0.04 ± 0.00	0.03 ± 0.00
Thymus (%)	0.12 ± 0.01	0.11 ± 0.01	0.13 ± 0.01	0.11 ± 0.00
Gonads (%)	0.10 ± 0.00	0.08 ± 0.01	0.10 ± 0.01*	0.07 ± 0.01

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 6: Organ-to-Body Weight Ratios/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Body Weight (grams)	271.88 ± 7.57*	310.14 ± 6.18	295.60 ± 5.95	296.81 ± 3.83
Kidneys (%)	0.72 ± 0.01*	0.71 ± 0.01	0.69 ± 0.01	0.68 ± 0.01
Lungs (%)	0.44 ± 0.02	0.41 ± 0.01	0.43 ± 0.01	0.41 ± 0.01
Liver (%)	2.99 ± 0.05	2.99 ± 0.05	2.89 ± 0.04	2.91 ± 0.02
Heart (%)	0.31 ± 0.01	0.30 ± 0.00	0.32 ± 0.01	0.31 ± 0.01
Brain (%)	0.67 ± 0.02*	0.60 ± 0.01	0.63 ± 0.01	0.62 ± 0.01
Spleen (%)	0.24 ± 0.00*	0.20 ± 0.00	0.20 ± 0.00	0.20 ± 0.00
Adrenals (%)	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00
Thymus (%)	0.08 ± 0.00	0.10 ± 0.01	0.09 ± 0.01	0.10 ± 0.01
Gonads (%)	1.62 ± 0.08	1.54 ± 0.08	1.60 ± 0.08	1.68 ± 0.09

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

TABLE 7: Hematology Values/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
RBC ( $\times 10^6/\mu\text{L}$ )	7.55 * $\pm 0.12$	7.85 * $\pm 0.25$	8.23 $\pm 0.15$	8.13 $\pm 0.27$
Hemoglobin (g/dL)	14.15 * $\pm 0.28$	14.86 * $\pm 0.53$	15.77 $\pm 0.31$	15.59 $\pm 0.51$
Hematocrit (%)	40.64 * $\pm 0.69$	41.67 * $\pm 1.37$	43.9 $\pm 0.54$	43.37 $\pm 1.55$
WBC ( $\times 10^3/\mu\text{L}$ )	4.30 $\pm 0.96$	3.65 $\pm 0.88$	3.89 $\pm 0.72$	3.64 $\pm 0.65$
Platelets ( $\times 10^3/\mu\text{L}$ )	772.50 * $\pm 38.85$	717.50 $\pm 53.53$	683.56 $\pm 36.66$	700.9 $\pm 49.48$
Segmented Leukocytes (%)	17.73 $\pm 6.59$	20.12 $\pm 3.87$	23.14 $\pm 4.48$	19.66 $\pm 3.17$
Lymphocytes (%)	77.10 $\pm 6.19$	75.73 $\pm 4.11$	72.72 $\pm 5.14$	76.59 $\pm 3.42$
Heinz Bodies (%)	0.0 $\pm 0.00$	0.0 $\pm 0.00$	0.0 $\pm 0.00$	0.0 $\pm 0.00$
MCV (CUMICR)	53.88 $\pm 0.44$	53.10 $\pm 0.56$	53.42 $\pm 0.61$	53.36 $\pm 0.52$
MCH (PICOgm)	18.75 $\pm 0.44$	18.93 $\pm 0.35$	19.16 $\pm 0.29$	19.20 $\pm 0.58$
MCHC (g/dL)	34.82 * $\pm 0.60$	35.62 $\pm 0.50$	35.88 $\pm 0.60$	35.98 $\pm 1.17$
Retic (%)	3.46 * $\pm 0.44$	2.56 $\pm 0.39$	2.18 $\pm 0.36$	2.16 $\pm 0.30$
MetHb (%)	2.22 * $\pm 0.56$	0.85 * $\pm 0.25$	0.36 $\pm 0.20$	0.38 $\pm 0.26$

Mean  $\pm$  Standard Deviation\* Significantly different from the control group ( $P \leq 0.05$ ) by the Dunnett's Test.



TABLE 8: Hematology Values/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
RBC ( $\times 10^6/\mu\text{L}$ )	8.38 * $\pm 0.23$	8.92 $\pm 0.22$	9.06 $\pm 0.20$	9.04 $\pm 0.28$
Hemoglobin (g/dl)	14.71 * $\pm 0.36$	15.19 * $\pm 0.47$	15.51 $\pm 0.29$	15.60 $\pm 0.22$
Hematocrit (%)	43.55 * $\pm 1.77$	44.36 $\pm 1.28$	45.67 $\pm 0.95$	45.88 $\pm 1.70$
WBC ( $\times 10^3/\mu\text{L}$ )	5.14 $\pm 0.63$	4.82 $\pm 0.76$	4.47 $\pm 0.53$	4.89 $\pm 0.42$
Platelets ( $\times 10^3/\mu\text{L}$ )	759.50 * $\pm 34.29$	694.30 $\pm 35.06$	673.30 $\pm 80.99$	660.10 $\pm 42.75$
Segmented Leukocytes (%)	22.75 $\pm 5.72$	20.63 $\pm 3.10$	21.97 $\pm 4.28$	24.20 $\pm 5.88$
Lymphocytes (%)	72.75 $\pm 5.69$	74.64 $\pm 3.92$	74.97 $\pm 3.46$	71.40 $\pm 6.01$
Heinz Bodies (%)	0.0 $\pm 0.00$	0.0 $\pm 0.00$	0.0 $\pm 0.00$	0.0 $\pm 0.00$
MCV (CUMICR)	51.97 * $\pm 0.83$	49.73 * $\pm 0.70$	50.43 $\pm 0.62$	50.76 $\pm 0.86$
MCH (PICOgm)	17.57 $\pm 0.36$	17.02 $\pm 0.43$	17.11 $\pm 0.40$	17.29 $\pm 0.46$
MCHC (g/dl)	33.82 $\pm 0.98$	33.94 $\pm 1.07$	33.92 $\pm 0.64$	33.73 $\pm 1.22$
Retic (%)	3.08 * $\pm 0.43$	2.21 $\pm 0.37$	1.89 $\pm 0.28$	2.03 $\pm 0.21$
MetHb (%)	3.12 * $\pm 0.57$	1.13 * 0.30	0.60 $\pm 0.32$	0.50 $\pm 0.33$

Mean  $\pm$  Standard Deviation\* Significantly different from the control group ( $P \leq 0.05$ ) by the Dunnett's Test.

Table 9: Clinical Chemistry Values/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Glucose (mg/dl)	153.60 ± 13.60	152.00 ± 9.23	174.30 ± 12.68	163.10 ± 9.24
BUN (mg/dl)	19.50 ± 1.65	19.30 ± 2.45	18.80 ± 2.62	18.30 ± 1.83
Creatinine (mg/dl)	0.53 ± 0.05	0.56 ± 0.05	0.53 ± 0.05	0.54 ± 0.05
Alk phos (IU/L)	94.70 ± 10.04	81.90 ± 8.09	88.60 ± 9.79	85.80 ± 12.97
AST (IU/L)	77.60 ± 20.20	93.60 ± 49.44	93.70 ± 29.39	86.20 ± 18.11
ALT (IU/L)	51.00 ± 13.62	65.70 ± 34.47	68.40 ± 20.84	60.10 ± 10.20
Potassium (mEq/L)	4.81 ± 0.26	5.43 ± 3.14	4.87 ± 0.46	4.69 ± 0.50
Albumin (g/dl)	4.46 ± 0.10	4.46 ± 0.12	4.44 ± 0.11	4.53 ± 0.13
Calcium (mg/dl)	10.41 ± 0.20	9.81 ± 1.70	10.37 ± 0.18	10.43 ± 0.22
Phosphorus (mg/dl)	8.21 ± 0.65	8.03 ± 0.53	7.74 ± 0.49	7.90 ± 0.92
Sodium (mEq/L)	142.50 ± 1.43	141.20 ± 1.75	141.20 ± 1.69	140.80 ± 1.99
Total Bilirubin (mg/dl)	0.12 ± 0.04	0.11 ± 0.03	0.10 ± 0.00	0.10 ± 0.00
Total Protein (g/dl)	6.09 ± 0.26	6.01 ± 0.15	6.03 ± 0.22	6.18 ± 0.23

Mean ± Standard Deviation

\* Significantly different from controls;  $p \leq 0.05$  by Dunnett's test.

Table 10: Clinical Chemistry Values/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Glucose (mg/dl)	199.80 ± 39.45	204.70 ± 27.37	201.80 ± 26.66	216.50 ± 23.23
BUN (mg/dl)	20.60 ± 1.84*	18.00 ± 1.25	17.90 ± 1.66	18.50 ± 1.35
Creatinine (mg/dl)	0.55 ± 0.05	0.58 ± 0.04	0.54 ± 0.05	0.54 ± 0.07
Alk phos (IU/L)	108.00 ± 10.68	94.10 ± 12.22*	102.20 ± 9.20	108.20 ± 12.15
AST (IU/L)	105.00 ± 51.39	81.70 ± 14.17	108.70 ± 99.10	101.90 ± 29.28
ALT (IU/L)	68.00 ± 31.40	59.20 ± 9.96	88.70 ± 80.94	82.20 ± 19.98
Potassium (mEq/L)	5.08 ± 0.88	5.05 ± 0.31	4.83 ± 0.67	4.77 ± 0.39
Albumin (g/dl)	4.75 ± 0.18	4.64 ± 0.07	4.54 ± 0.08	4.64 ± 0.15
Calcium (mg/dl)	11.17 ± 0.22	11.12 ± 0.25	10.90 ± 0.25	10.98 ± 0.16
Phosphorus (mg/dl)	8.77 ± 1.04	8.47 ± 0.47	8.28 ± 0.57	8.21 ± 0.90
Sodium (mEq/L)	139.80 ± 1.48	140.80 ± 1.55	140.30 ± 1.25	140.70 ± 0.48
Total Bilirubin (mg/dl)	0.16 ± 0.05	0.13 ± 0.05	0.10 ± 0.00	0.12 ± 0.04
Total Protein (g/dl)	6.61 ± 0.22	6.52 ± 0.26	6.38 ± 0.15	6.60 ± 0.32

Mean ± Standard Deviation

\* Significantly different from controls;  $p \leq 0.05$  by Dunnett's test.

CLINICAL CHEMISTRY  
AND  
HEMATOLOGY DATA

# Clinical Chemistries/Females

DOSE GROUPS	ANIMALS	GLUCOSE	BUN	CREAT	SODIUM	POTASSIUM
(mg TNB/kg)						
diet	#	mg/dl	mg/dl	mg/dl	mmol/l	mmol/l
300	1	155	17	0.5	144	4.7
	2	145	21	0.6	141	4.8
	3	148	21	0.5	142	4.7
	4	133	18	0.5	144	4.6
	5	176	21	0.6	143	5.2
	6	166	19	0.6	141	4.5
	7	147	20	0.5	143	4.6
	8	157	20	0.5	144	5.1
	9	169	17	0.5	140	4.7
	10	140	21	0.5	143	5.2
60	76	153	18	0.6	140	5.0
	77	156	21	0.6	143	4.1
	78	143	24	0.6	140	14.3
	79	142	20	0.6	144	4.5
	80	169	18	0.5	142	4.1
	81	155	17	0.6	138	4.2
	82	156	18	0.5	142	4.5
	83	138	22	0.6	142	4.2
	84	159	19	0.5	140	5.2
	85	149	16	0.5	141	4.2
5	151	146	18	0.5	142	4.9
	152	177	19	0.5	140	4.3
	153	169	16	0.5	140	6.0
	154	178	19	0.6	142	5.0
	155	168	22	0.6	143	4.7
	156	185	16	0.5	140	4.8
	157	170	17	0.5	141	4.9
	158	193	17	0.5	138	5.0
	159	183	24	0.5	143	4.6
	160	174	20	0.6	143	4.5
0	226	181	17	0.6	138	5.1
	227	163	19	0.5	139	5.4
	228	153	21	0.6	145	5.3
	229	161	20	0.5	141	4.2
	230	168	16	0.6	142	4.9
	231	161	17	0.5	141	4.4
	232	159	17	0.5	140	4.8
	233	149	21	0.5	142	4.5
	234	163	17	0.6	139	4.5
	235	173	18	0.5	141	3.8

## Clinical Chemistries/Females

DOSE GROUPS	ANIMALS	AST	ALT	PHOS	AP	CA	TOTAL BILIRUBIN	TOTAL PROTEIN	ALB
(mg TNB/kg)									
diet	#	U/L	U/L	mg/dl	U/L	mg/dl	mg/dl	g/dl	g/dl
300	1	73	50	8.1	93	10.4	0.1	5.9	4.6
	2	77	51	9.0	104	10.4	0.1	5.8	4.3
	3	67	38	7.7	78	10.5	0.1	6.0	4.5
	4	75	43	8.5	100	10.4	0.1	6.3	4.5
	5	78	44	8.5	98	10.6	0.1	6.6	4.4
	6	61	39	8.7	79	10.8	0.1	5.9	4.4
	7	76	54	7.5	91	10.3	0.1	6.0	4.4
	8	133	86	8.9	104	10.1	0.2	6.0	4.4
	9	68	51	7.0	93	10.2	0.1	6.0	4.5
	10	68	54	8.2	107	10.4	0.2	6.4	4.6
60	76	182	118	8.8	73	10.2	0.1	6.2	4.6
	77	191	141	8.1	85	10.2	0.1	5.8	4.4
	78	79	53	8.3	72	5.0	0.1	6.1	4.6
	79	74	51	7.5	83	10.5	0.1	6.1	4.4
	80	62	52	7.6	80	10.2	0.1	6.2	4.6
	81	67	51	8.2	93	10.4	0.1	5.9	4.3
	82	61	39	7.2	87	10.2	0.1	5.9	4.5
	83	66	42	7.9	84	10.5	0.1	6.0	4.5
	84	80	54	8.8	70	10.5	0.2	6.1	4.3
	85	74	56	7.9	92	10.4	0.1	5.8	4.4
5	151	61	44	8.4	95	10.6	0.1	6.2	4.4
	152	122	90	7.8	73	10.3	0.1	6.2	4.4
	153	91	61	8.5	82	10.5	0.1	5.8	4.3
	154	68	49	7.9	104	10.5	0.1	6.1	4.6
	155	90	62	7.6	91	10.6	0.1	6.1	4.4
	156	97	72	7.8	77	10.3	0.1	6.1	4.5
	157	64	53	7.5	91	10.1	0.1	5.7	4.3
	158	70	55	6.8	89	10.1	0.1	5.7	4.4
	159	134	93	7.4	100	10.4	0.1	6.3	4.6
	160	140	105	7.7	84	10.3	0.1	6.1	4.5
0	226	124	81	7.3	67	10.7	0.1	6.6	4.7
	227	105	66	7.9	80	10.6	0.1	6.2	4.5
	228	83	58	7.4	98	10.2	0.1	6.2	4.7
	229	63	49	6.8	99	10.1	0.1	6.0	4.3
	230	93	66	8.9	80	10.3	0.1	6.0	4.5
	231	71	46	7.9	97	10.3	0.1	5.9	4.5
	232	71	54	8.2	81	10.8	0.1	6.5	4.6
	233	79	67	9.9	95	10.5	0.1	6.2	4.5
	234	92	57	7.5	65	10.4	0.1	6.0	4.4
	235	81	57	7.2	96	10.4	0.1	6.2	4.6

# Clinical Chemistries/Males

DOSE GROUPS (mg TNB/kg)	ANIMALS #	GLUCOSE mg/dl	BUN mg/dl	CREAT mg/dl	SODIUM mmol/l	POTASSIUM mmol/l
diet						
300	286	168	20	0.5	142	5.1
	287	207	17	0.6	141	5.1
	288	303	19	0.6	138	7.5
	289	186	19	0.5	137	4.5
	290	193	22	0.6	140	5.0
	291	213	23	0.5	141	4.6
	292	180	21	0.5	139	4.7
	293	202	22	0.6	140	4.8
	294	168	22	0.5	140	4.6
	295	178	21	0.6	140	4.9
60	361	224	17	0.6	142	4.8
	362	249	20	0.6	141	4.9
	363	216	18	0.6	139	5.1
	364	181	18	0.5	140	5.1
	365	230	17	0.6	143	4.9
	366	203	16	0.6	141	5.6
	367	179	18	0.5	139	4.5
	368	163	20	0.6	141	5.4
	369	219	18	0.6	139	5.2
	370	183	18	0.6	143	5.0
5	436	186	14	0.5	141	4.6
	437	163	19	0.5	139	4.7
	438	244	20	0.5	139	6.6
	439	171	18	0.5	142	4.7
	440	206	17	0.5	140	5.1
	441	185	17	0.5	142	4.2
	442	210	19	0.6	141	4.3
	443	232	19	0.6	141	4.6
	444	226	18	0.6	139	4.9
	445	195	18	0.6	139	4.6
0	511	246	17	0.5	140	4.4
	512	194	19	0.5	141	4.6
	513	184	21	0.5	140	4.7
	514	226	18	0.5	140	4.5
	515	211	20	0.5	141	4.7
	516	247	19	0.7	141	4.8
	517	225	18	0.5	141	4.7
	518	186	17	0.5	141	4.9
	519	211	19	0.6	141	4.6
	520	235	17	0.6	141	5.8

Clinical Chemistries/Males

DOSE GROUPS	ANIMALS	AST	ALT	PHOS	AP	CA	TOTAL BILIRUBIN	TOTAL PROTEIN	ALB
(mg TNB/kg)									
diet	#	U/L	U/L	mg/dl	U/L	mg/dl	mg/dl	g/dl	g/dl
300	286	74	50	8.7	109	11.1	0.2	6.6	4.8
	287	62	55	8.0	88	11.1	0.1	6.6	4.7
	288	237	153	11.5	105	11.6	0.2	6.7	4.8
	289	73	52	8.7	97	10.9	0.1	6.1	4.3
	290	114	66	8.4	106	10.9	0.2	6.8	4.8
	291	94	59	7.9	124	11.1	0.2	6.6	4.7
	292	70	48	9.2	108	11.1	0.1	6.4	4.7
	293	95	58	8.8	111	11.4	0.2	6.7	4.9
	294	135	82	8.4	123	11.3	0.2	6.8	5.0
	295	96	57	8.1	109	11.2	0.1	6.8	4.8
60	361	62	56	8.0	84	10.9	0.1	6.4	4.7
	362	91	68	7.8	88	10.9	0.2	6.5	4.7
	363	78	54	8.4	102	11.2	0.1	7.0	4.7
	364	85	53	9.0	95	10.8	0.1	6.3	4.5
	365	75	67	8.4	97	11.4	0.1	6.4	4.7
	366	63	47	8.7	83	11.2	0.2	6.8	4.6
	367	111	74	8.7	89	10.9	0.1	6.2	4.6
	368	79	44	9.1	122	11.6	0.2	6.8	4.7
	369	86	68	8.8	100	11.2	0.1	6.5	4.6
	370	87	61	7.8	81	11.1	0.1	6.3	4.6
5	436	74	57	8.4	87	10.6	0.1	6.2	4.4
	437	75	55	9.2	117	11.3	0.1	6.4	4.6
	438	389	318	8.8	104	10.6	0.1	6.5	4.6
	439	76	67	8.0	104	10.8	0.1	6.4	4.6
	440	79	61	9.0	105	11.2	0.1	6.3	4.6
	441	107	83	8.4	102	10.6	0.1	6.1	4.4
	442	71	64	7.7	101	11.0	0.1	6.4	4.5
	443	76	61	7.7	100	11.0	0.1	6.5	4.6
	444	74	61	7.6	89	11.0	0.1	6.4	4.6
	445	66	60	8.0	113	10.9	0.1	6.6	4.5
0	511	75	68	7.0	95	10.8	0.1	6.2	4.5
	512	115	95	8.1	90	11.0	0.2	6.3	4.5
	513	122	89	6.9	123	11.1	0.1	6.8	4.9
	514	62	55	8.3	102	11.0	0.2	6.5	4.7
	515	109	79	8.0	126	11.1	0.1	7.2	4.7
	516	91	79	8.1	100	11.1	0.1	6.7	4.6
	517	137	110	8.6	118	10.8	0.1	6.4	4.6
	518	67	58	8.2	114	11.2	0.1	6.9	4.8
	519	93	75	8.8	112	10.7	0.1	6.3	4.4
	520	148	114	10.1	102	11.0	0.1	6.7	4.7



# Hematology Data/Females

DOSE GROUPS	ANIMALS	METHB	WBC COUNT	RBC COUNT	HGB	HCT	MCV
(mg TNB/kg) diet	#	%	thsn/ cu mm	mill/ cu mm	g/dl	%	cumicr
300	1	3.1	3.7	7.58	14.1	41.0	54.2
	2	2.2	5.0	7.36	13.6	39.1	53.2
	3	1.7	3.5	7.53	13.9	40.2	53.4
	4	1.8	3.1	7.57	14.1	40.8	53.9
	5	2.8	4.7	7.62	14.1	40.9	53.6
	6	1.7	3.3	7.35	14.5	40.3	54.8
	7	3.0	4.6	7.49	14.3	40.4	54.0
	8	2.3	4.7	7.71	14.1	41.6	53.9
	9	1.9	6.3	7.59	14.6	40.9	53.9
	10	1.7	4.1	7.66	14.2	41.2	53.9
60	76	1.2	3.6	8.14	15.7	43.9	53.9
	77	0.8	2.0	7.88	14.8	42.3	53.7
	78	0.6	3.7	8.11	14.9	42.1	52.0
	79	1.2	4.9	8.21	15.3	43.4	52.9
	80	0.7	5.1	7.97	15.4	42.2	53.0
	81	0.8	3.3	7.69	14.8	40.8	53.1
	82	0.6	3.6	7.65	14.3	40.5	53.0
	83	1.2	3.8	7.49	13.9	39.4	52.6
	84	0.7	3.5	7.75	14.9	41.2	53.2
	85	0.7	3.0	7.64	14.6	40.9	53.6
5	151	0.4	3.3	8.38	15.8	44.4	53.0
	152	0.3	3.8	8.06	15.5	43.3	53.8
	153	0.3	3.5	7.99	15.4	43.3	54.2
	154	0.0	3.9	8.06	15.3	43.7	54.2
	155	0.4	3.1	8.39	15.6	44.0	52.5
	156	0.7	4.8	8.35	16.1	45.0	53.9
	157	0.6	3.3	8.18	15.9	43.8	53.6
	158	0.2	3.7	8.26	15.9	43.5	52.7
	159	0.3	4.1	8.33	16.0	44.3	53.3
	160	0.4	5.4	8.25	16.2	43.7	53.0
0	226	0.6	4.3	8.28	16.3	44.0	53.2
	227	0.6	2.8	8.11	15.7	43.1	53.2
	228	0.8	3.3	8.56	15.6	46.0	53.7
	229	0.0	3.9	8.13	14.8	42.7	52.6
	230	0.2	3.5	8.33	16.1	45.2	54.2
	231	0.4	2.9	7.65	15.1	40.8	53.3
	232	0.3	3.2	7.82	15.3	42.2	53.9
	233	0.1	4.2	8.19	15.1	44.0	53.7
	234	0.6	3.5	7.90	15.7	42.0	53.2
	235	0.2	4.8	8.31	16.2	43.7	52.6

# Hematology Data/Females

DOSE GROUPS	ANIMALS	MCH	MCHC	PLAT	NEUTRO- PHILS	LYMPHO- CYTES	RETIC	HEINZ BODIES
(mg TNB/kg) diet	#	picogm	g/dl	thsn/ cu mm	%	%	%	%
300	1	18.6	34.4	789	27.0	69.6	3.8	0.0
	2	18.4	34.6	*733	17.8	78.9	3.5	0.0
	3	18.5	34.7	776	12.4	85.4	3.6	0.0
	4	18.6	34.6	*	15.5	80.4	3.4	0.0
	5	18.5	34.5	779	20.2	77.0	4.0	0.0
	6	19.7	35.9	827	10.7	86.4	3.0	0.0
	7	19.1	35.4	796	27.2	69.3	3.4	0.0
	8	18.3	34.0	701	6.9	69.5	2.6	0.0
	9	19.2	35.6	779	19.6	77.5	3.3	0.0
	10	18.6	34.5	*	20.0	77.0	4.0	0.0
60	76	19.3	35.8	711	18.4	78.4	2.9	0.0
	77	18.8	34.9	658	19.6	77.1	2.6	0.0
	78	18.4	35.3	672	15.7	79.5	2.6	0.0
	79	18.6	35.2	*743	24.8	69.4	2.3	0.0
	80	19.3	36.4	845	21.3	75.3	3.1	0.0
	81	19.3	36.2	686	20.4	74.7	1.9	0.0
	82	18.7	35.3	718	21.2	75.1	2.2	0.0
	83	18.6	35.3	729	19.4	76.7	2.6	0.0
	84	19.2	36.1	737	13.6	82.1	2.3	0.0
	85	19.1	35.7	676	26.8	69.0	3.1	0.0
5	151	18.8	35.5	676	29.1	66.1	2.1	0.0
	152	19.2	35.7	746	18.8	78.5	2.6	0.0
	153	19.2	35.5	616	21.7	74.0	1.9	0.0
	154	19.0	35.0	685	19.6	75.9	2.7	0.0
	155	18.6	35.4	682	32.6	62.0	2.2	0.0
	156	19.3	35.8	680	19.9	76.6	2.6	0.0
	157	19.4	36.3	720	21.5	74.6	1.8	0.0
	158	19.3	36.5	692	22.2	73.7	2.3	0.0
	159	19.2	36.1	*	25.0	70.2	1.7	0.0
	160	19.6	37.0	655	21.0	75.6	1.9	0.0
0	226	19.6	36.9	620	16.0	80.8	2.1	0.0
	227	19.3	36.3	736	21.2	75.0	2.0	0.0
	228	18.5	34.3	669	19.4	76.4	2.6	0.0
	229	18.3	34.7	651	22.7	72.4	2.1	0.0
	230	19.3	35.7	773	14.5	81.6	1.9	0.0
	231	19.7	37.0	678	23.7	73.0	2.3	0.0
	232	19.5	36.2	675	21.4	74.5	2.6	0.0
	233	18.4	34.3	756	22.5	73.8	1.8	0.0
	234	19.9	37.3	718	16.4	80.5	1.8	0.0
	235	19.5	37.1	733	18.8	77.9	2.4	0.0

\* - Platelets were clumped.

# Hematology Data/Males

DOSE GROUPS	ANIMALS	METHB	WBC COUNT	RBC COUNT	HGB	HCT	MCV
(mg TNB/kg) diet	#	%	thsn/ cu mm	mill/ cu mm	g/dl	%	cumicr
300	286	2.7	4.8	8.49	15.3	44.7	52.6
	287	3.0	5.3	8.33	14.7	43.2	51.9
	288	3.7	6.6	8.92	15.1	47.4	53.1
	289	2.4	4.9	8.24	14.4	42.7	51.9
	290	2.1	4.6	8.17	14.5	43.2	52.9
	291	3.2	4.9	8.37	14.5	43.3	51.7
	292	3.9	4.9	8.14	14.3	41.1	50.5
	293	3.5	4.4	8.52	14.6	44.7	52.5
	294	3.4	5.3	8.45	15.2	43.6	51.6
	295	3.3	5.7	8.17	14.5	41.6	51.0
60	361	1.2	5.5	9.18	15.7	45.5	49.5
	362	0.8	4.6	8.97	15.6	44.4	49.5
	363	1.2	5.1	9.08	15.4	45.0	49.6
	364	1.3	4.4	8.49	14.7	42.0	49.5
	365	0.6	5.5	8.88	15.5	44.8	50.5
	366	1.2	5.0	8.92	14.6	44.2	49.5
	367	1.0	5.0	8.70	14.4	42.3	48.7
	368	1.7	5.8	8.81	15.6	45.2	51.3
	369	1.3	4.0	9.23	15.3	45.9	49.7
	370	1.0	3.3	8.95	15.1	44.3	49.5
5	436	0.4	5.0	8.99	15.4	45.3	50.4
	437	0.6	4.0	8.96	15.6	45.5	50.8
	438	0.7	4.0	9.49	16.0	47.4	49.9
	439	0.2	4.1	9.21	15.4	46.4	50.4
	440	0.1	4.0	9.07	15.2	45.2	49.8
	441	1.1	4.2	8.82	15.6	43.9	49.8
	442	0.7	5.3	9.05	16.0	46.6	51.5
	443	0.5	4.1	9.06	15.2	45.6	50.3
	444	0.7	5.1	9.11	15.4	45.6	50.0
	445	1.0	4.9	8.79	15.3	45.2	51.4
0	511	0.6	5.1	9.15	15.7	46.2	50.5
	512	0.9	5.0	8.76	15.5	44.1	50.3
	513	0.8	4.6	9.12	15.6	46.5	51.0
	514	0.7	5.4	8.42	15.3	43.4	51.5
	515	0.0	5.2	9.14	15.7	46.1	50.4
	516	0.3	4.5	9.21	16.1	47.5	51.5
	517	0.0	4.9	9.06	15.7	45.2	49.9
	518	0.3	4.9	8.86	15.5	44.5	50.3
	519	0.8	4.0	9.28	15.4	46.1	49.7
	520	0.6	5.3	9.37	15.5	49.2	52.5

# Hematology Data/Males

DOSE GROUPS	ANIMALS	MCH	MCHC	PLAT	NEUTRO- PHILS	LYMPHO- CYTES	RETIC	HEINZ BODIES
(mg TNB/kg)				thsn/				
diet	#	picogm	g/dl	cu mm	%	%	%	%
300	286	18.0	34.1	718	21.9	73.6	3.1	0.0
	287	17.7	34.1	803	18.8	76.9	4.0	0.0
	288	16.9	31.8	778	21.3	74.0	3.4	0.0
	289	17.5	33.8	704	23.0	72.3	2.7	0.0
	290	17.8	33.6	737	20.7	75.2	2.9	0.0
	291	17.4	33.6	746	26.3	70.3	3.0	0.0
	292	17.6	34.8	773	17.2	76.9	3.0	0.0
	293	17.1	32.7	806	19.1	76.6	3.0	0.0
	294	18.0	34.9	750	21.8	74.0	2.4	0.0
	295	17.7	34.8	780	37.4	57.7	3.3	0.0
60	361	17.1	34.5	729	19.7	76.2	2.0	0.0
	362	17.4	35.1	700	17.3	78.7	2.8	0.0
	363	16.9	34.2	716	18.6	77.6	1.7	0.0
	364	17.3	34.9	683	18.2	76.7	2.0	0.0
	365	17.4	31.4	700	20.9	74.3	2.5	0.0
	366	16.4	33.1	733	24.4	70.0	2.8	0.0
	367	16.6	34.1	656	20.1	75.1	2.1	0.0
	368	17.7	34.5	622	27.2	65.9	2.1	0.0
	369	16.6	33.5	723	21.7	74.4	2.1	0.0
	370	16.8	34.1	681	18.2	77.5	2.0	0.0
5	436	17.2	34.1	690	18.7	77.6	2.3	0.0
	437	17.4	34.2	694	30.0	73.0	1.7	0.0
	438	16.8	33.7	456	23.7	73.8	1.5	0.0
	439	16.7	33.1	*701	27.9	67.4	2.1	0.0
	440	16.7	33.6	719	20.5	75.6	1.6	0.0
	441	17.6	35.4	631	22.8	73.2	2.0	0.0
	442	17.7	34.3	726	16.4	79.7	2.1	0.0
	443	16.7	33.3	720	18.2	78.3	2.2	0.0
	444	16.9	33.7	710	20.3	76.2	1.8	0.0
	445	17.4	33.8	686	21.2	74.9	1.6	0.0
0	511	17.2	34.1	709	20.4	75.5	1.8	0.0
	512	17.7	31.8	686	21.0	76.2	2.2	0.0
	513	17.1	33.5	*628	22.2	73.8	1.8	0.0
	514	18.1	35.2	633	18.7	76.9	2.2	0.0
	515	17.2	34.1	666	30.6	64.3	1.8	0.0
	516	17.5	33.9	686	22.1	73.2	1.9	0.0
	517	17.4	34.9	614	32.3	63.9	2.0	0.0
	518	17.5	34.8	733	33.9	61.0	2.0	0.0
	519	16.6	33.4	642	23.4	72.3	2.3	0.0
	520	16.6	31.6	604	17.4	76.9	2.3	0.0

\* - Platelets were clumped.

BODY AND ORGAN  
WEIGHTS

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
1	1	145.39	1.242	0.913	4.326	0.854	0.628	2.975
1	2	164.45	1.204	0.908	4.903	0.732	0.552	2.981
1	3	156.08	1.254	0.883	4.407	0.803	0.566	2.824
1	4	156.61	1.254	0.778	4.490	0.801	0.497	2.867
1	5	162.63	1.242	0.942	4.894	0.764	0.579	3.009
1	6	163.35	1.171	0.885	4.794	0.717	0.542	2.935
1	7	164.23	1.251	1.031	4.606	0.762	0.628	2.805
1	8	162.45	1.350	0.931	4.995	0.831	0.573	3.075
1	9	166.13	1.199	0.890	4.732	0.722	0.536	2.848
1	10	168.77	1.212	0.908	4.885	0.718	0.538	2.894
2	76	167.24	1.296	0.781	4.383	0.775	0.467	2.621
2	77	165.01	1.269	0.905	4.389	0.769	0.548	2.660
2	78	161.54	1.202	1.001	4.360	0.744	0.620	2.699
2	79	171.45	1.228	0.841	4.705	0.716	0.491	2.744
2	80	173.12	1.242	0.818	4.620	0.717	0.473	2.669
2	81	162.08	1.239	0.801	4.588	0.764	0.494	2.831
2	82	168.75	1.267	0.942	4.653	0.751	0.558	2.757
2	83	169.50	1.099	1.024	4.547	0.648	0.604	2.683
2	84	165.07	1.248	0.945	4.925	0.756	0.572	2.984
2	85	157.88	1.236	1.017	4.295	0.783	0.644	2.720
3	151	169.13	1.191	0.813	4.478	0.704	0.481	2.648
3	152	160.45	1.229	0.975	4.442	0.766	0.608	2.768
3	153	160.03	1.263	0.872	4.496	0.789	0.545	2.809
3	154	171.30	1.284	1.011	4.880	0.750	0.590	2.849
3	155	161.26	1.212	0.716	3.869	0.752	0.444	2.399
3	156	157.63	1.071	0.831	4.069	0.679	0.527	2.581
3	157	167.15	1.305	0.904	4.789	0.781	0.541	2.865
3	158	172.46	1.199	0.968	4.416	0.695	0.561	2.561
3	159	182.53	1.269	0.902	4.894	0.695	0.494	2.681
3	160	168.41	1.317	0.929	4.756	0.782	0.552	2.824
4	226	186.58	1.334	0.860	5.076	0.715	0.461	2.721
4	227	172.50	1.214	0.897	4.647	0.704	0.520	2.694
4	228	160.58	1.104	0.822	4.113	0.688	0.512	2.561
4	229	172.18	1.232	0.780	4.427	0.716	0.453	2.571
4	230	189.10	1.304	0.841	4.714	0.690	0.445	2.493
4	231	173.39	1.360	0.953	4.853	0.784	0.550	2.799
4	232	162.84	1.204	0.766	4.318	0.739	0.470	2.652
4	233	172.80	1.241	0.879	4.945	0.718	0.509	2.862
4	234	182.63	1.320	0.930	5.112	0.723	0.509	2.799
4	235	176.49	1.277	0.756	4.924	0.724	0.428	2.790

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
1	1	145.39	0.604	1.802	0.462	0.415	1.239	0.318
1	2	164.45	0.614	1.630	0.486	0.373	0.991	0.296
1	3	156.08	0.646	1.809	0.507	0.414	1.159	0.325
1	4	156.61	0.558	1.638	0.460	0.356	1.046	0.294
1	5	162.63	0.605	1.684	0.509	0.372	1.035	0.313
1	6	163.35	0.580	1.722	0.492	0.355	1.054	0.301
1	7	164.23	0.566	1.608	0.507	0.345	0.979	0.309
1	8	162.45	0.586	1.706	0.517	0.361	1.050	0.318
1	9	166.13	0.587	1.649	0.482	0.353	0.993	0.290
1	10	168.77	0.573	1.667	0.503	0.340	0.988	0.298
2	76	167.24	0.541	1.812	0.435	0.323	1.083	0.260
2	77	165.01	0.589	1.774	0.413	0.357	1.075	0.250
2	78	161.54	0.594	1.676	0.443	0.368	1.038	0.274
2	79	171.45	0.558	1.518	0.480	0.325	0.885	0.280
2	80	173.12	0.644	1.796	0.416	0.372	1.037	0.240
2	81	162.08	0.542	1.661	0.440	0.334	1.025	0.271
2	82	168.75	0.548	1.668	0.470	0.325	0.988	0.279
2	83	169.50	0.588	1.691	0.447	0.347	0.998	0.264
2	84	165.07	0.589	1.713	0.485	0.357	1.038	0.294
2	85	157.88	0.630	1.564	0.455	0.399	0.991	0.288
3	151	169.13	0.587	1.702	0.429	0.347	1.006	0.254
3	152	160.45	0.587	1.737	0.382	0.366	1.083	0.238
3	153	160.03	0.599	1.683	0.436	0.374	1.052	0.272
3	154	171.30	0.663	1.720	0.445	0.387	1.004	0.260
3	155	161.26	0.531	1.701	0.356	0.329	1.055	0.221
3	156	157.63	0.618	1.537	0.387	0.392	0.975	0.246
3	157	167.15	0.662	1.746	0.393	0.396	1.045	0.235
3	158	172.46	0.623	1.627	0.394	0.361	0.943	0.228
3	159	182.53	0.635	1.743	0.445	0.348	0.955	0.244
3	160	168.41	0.631	1.763	0.415	0.375	1.047	0.246
4	226	186.58	0.765	1.799	0.406	0.410	0.964	0.218
4	227	172.50	0.627	1.691	0.419	0.363	0.980	0.243
4	228	160.58	0.586	1.730	0.343	0.365	1.077	0.214
4	229	172.18	0.618	1.716	0.410	0.359	0.997	0.238
4	230	189.10	0.643	1.760	0.427	0.340	0.931	0.226
4	231	173.39	0.715	1.704	0.456	0.412	0.983	0.263
4	232	162.84	0.534	1.741	0.397	0.328	1.069	0.244
4	233	172.80	0.632	1.691	0.409	0.366	0.979	0.237
4	234	182.63	0.681	1.724	0.451	0.373	0.944	0.247
4	235	176.49	0.536	1.699	0.391	0.304	0.963	0.222

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	OVARIES WEIGHT	% ADRENAL	% THYMUS	% OVARIES
1	1	145.39	0.058	0.112	0.149	0.040	0.077	0.102
1	2	164.45	0.071	0.245	0.184	0.043	0.149	0.112
1	3	156.08	0.072	0.206	0.128	0.046	0.132	0.082
1	4	156.61	0.063	0.221	0.159	0.040	0.141	0.102
1	5	162.63	0.070	0.212	0.158	0.043	0.130	0.097
1	6	163.35	0.070	0.205	0.144	0.043	0.125	0.088
1	7	164.23	0.064	0.154	0.148	0.039	0.094	0.090
1	8	162.45	0.073	0.188	0.182	0.045	0.116	0.112
1	9	166.13	0.060	0.192	0.118	0.036	0.116	0.071
1	10	168.77	0.061	0.241	0.165	0.036	0.143	0.098
2	76	167.24	0.055	0.145	0.114	0.033	0.087	0.068
2	77	165.01	0.155	0.142	0.098	0.094	0.086	0.059
2	78	161.54	0.053	0.194	0.163	0.033	0.120	0.101
2	79	171.45	0.062	0.142	0.096	0.036	0.083	0.056
2	80	173.12	0.051	0.203	0.111	0.029	0.117	0.064
2	81	162.08	0.058	0.140	0.069	0.036	0.086	0.043
2	82	168.75	0.075	0.269	0.156	0.044	0.159	0.092
2	83	169.50	0.056	0.197	0.195	0.033	0.116	0.115
2	84	165.07	0.068	0.245	0.112	0.041	0.148	0.068
2	85	157.88	0.051	0.162	0.160	0.032	0.103	0.101
3	151	169.13	0.050	0.169	0.122	0.030	0.100	0.072
3	152	160.45	0.071	0.127	0.182	0.044	0.079	0.113
3	153	160.03	0.073	0.232	0.192	0.046	0.145	0.120
3	154	171.30	0.084	0.174	0.275	0.049	0.102	0.161
3	155	161.26	0.060	0.139	0.195	0.037	0.086	0.121
3	156	157.63	0.058	0.238	0.133	0.037	0.151	0.084
3	157	167.15	0.069	0.318	0.173	0.041	0.190	0.103
3	158	172.46	0.048	0.251	0.120	0.028	0.146	0.070
3	159	182.53	0.084	0.276	0.158	0.046	0.151	0.087
3	160	168.41	0.085	0.176	0.136	0.050	0.105	0.081
4	226	186.58	0.051	0.209	0.104	0.027	0.112	0.056
4	227	172.50	0.064	0.175	0.114	0.037	0.101	0.066
4	228	160.58	0.049	0.158	0.090	0.031	0.098	0.056
4	229	172.18	0.053	0.176	0.105	0.031	0.102	0.061
4	230	189.10	0.053	0.220	0.128	0.028	0.116	0.068
4	231	173.39	0.080	0.222	0.203	0.046	0.128	0.117
4	232	162.84	0.048	0.185	0.102	0.029	0.114	0.063
4	233	172.80	0.066	0.186	0.139	0.038	0.108	0.080
4	234	182.63	0.074	0.220	0.164	0.041	0.120	0.090
4	235	176.49	0.059	0.192	0.103	0.033	0.109	0.058



# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
5	286	232.79	1.735	0.892	6.409	0.745	0.383	2.753
5	287	283.50	2.184	1.460	9.134	0.770	0.515	3.222
5	288	260.18	2.002	1.117	8.387	0.769	0.429	3.224
5	289	255.62	1.697	0.965	7.159	0.664	0.378	2.801
5	290	255.76	1.815	1.053	7.498	0.710	0.412	2.932
5	291	259.09	1.812	1.157	7.956	0.699	0.447	3.071
5	292	303.17	2.162	1.457	9.236	0.713	0.481	3.046
5	293	290.98	2.239	1.476	9.034	0.769	0.507	3.105
5	294	269.50	1.813	0.962	7.545	0.673	0.357	2.800
5	295	308.20	2.227	1.381	9.140	0.723	0.448	2.966
6	361	285.20	2.078	1.199	9.183	0.729	0.420	3.220
6	362	298.30	2.182	1.396	8.902	0.731	0.468	2.984
6	363	338.30	2.630	1.390	10.951	0.777	0.411	3.237
6	364	319.11	2.326	1.380	9.097	0.729	0.432	2.851
6	365	274.86	2.010	1.199	8.286	0.731	0.436	3.015
6	366	318.04	2.254	1.505	9.742	0.709	0.473	3.063
6	367	323.39	2.213	1.199	9.026	0.684	0.371	2.791
6	368	305.73	2.014	1.209	8.267	0.659	0.395	2.704
6	369	310.94	2.206	1.126	9.412	0.709	0.362	3.027
6	370	327.50	2.259	1.169	9.913	0.690	0.357	3.027
7	436	282.53	1.965	1.097	7.982	0.696	0.388	2.825
7	437	292.95	2.052	1.446	8.417	0.700	0.494	2.873
7	438	292.83	2.119	1.183	8.744	0.724	0.404	2.986
7	439	291.78	2.048	1.301	8.187	0.702	0.446	2.806
7	440	304.37	2.152	1.337	9.002	0.707	0.439	2.958
7	441	261.07	1.956	1.261	7.502	0.749	0.483	2.874
7	442	289.82	1.771	1.202	7.933	0.611	0.415	2.737
7	443	321.90	2.293	1.237	9.807	0.712	0.384	3.047
7	444	326.88	2.219	1.336	9.871	0.679	0.409	3.020
7	445	291.82	1.901	1.309	7.968	0.651	0.449	2.730
8	511	280.45	2.033	1.351	8.233	0.725	0.482	2.936
8	512	311.47	2.134	1.148	9.420	0.685	0.369	3.024
8	513	313.15	2.117	1.308	9.458	0.676	0.418	3.020
8	514	298.20	1.933	1.092	8.543	0.648	0.366	2.865
8	515	298.18	2.013	1.207	8.870	0.675	0.405	2.975
8	516	312.70	2.110	1.275	8.994	0.675	0.408	2.876
8	517	293.32	1.907	1.216	8.550	0.650	0.415	2.915
8	518	287.52	2.024	1.269	8.097	0.704	0.441	2.816
8	519	288.38	1.927	1.091	8.068	0.668	0.378	2.798
8	520	284.71	1.995	1.244	8.241	0.701	0.437	2.895

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
5	286	232.79	0.707	1.828	0.487	0.304	0.785	0.209
5	287	283.50	0.870	1.771	0.693	0.307	0.625	0.244
5	288	260.18	0.907	1.835	0.622	0.349	0.705	0.239
5	289	255.62	0.917	1.724	0.611	0.359	0.674	0.239
5	290	255.76	0.769	1.795	0.654	0.301	0.702	0.256
5	291	259.09	0.763	1.862	0.621	0.294	0.719	0.240
5	292	303.17	0.857	1.742	0.755	0.283	0.575	0.249
5	293	290.98	0.909	1.854	0.717	0.312	0.637	0.246
5	294	269.50	0.859	1.863	0.588	0.319	0.691	0.218
5	295	308.20	0.947	1.792	0.719	0.307	0.581	0.233
6	361	285.20	0.895	1.795	0.577	0.314	0.629	0.202
6	362	298.30	0.882	1.879	0.581	0.296	0.630	0.195
6	363	338.30	1.110	2.048	0.656	0.328	0.605	0.194
6	364	319.11	0.964	1.876	0.625	0.302	0.588	0.196
6	365	274.86	0.865	1.734	0.577	0.315	0.631	0.210
6	366	318.04	0.917	1.905	0.651	0.288	0.599	0.205
6	367	323.39	0.957	1.810	0.695	0.296	0.560	0.215
6	368	305.73	0.909	1.916	0.620	0.297	0.627	0.203
6	369	310.94	0.939	1.768	0.614	0.302	0.569	0.197
6	370	327.50	1.015	1.929	0.685	0.310	0.589	0.209
7	436	282.53	1.018	1.830	0.596	0.360	0.648	0.211
7	437	292.95	0.896	1.821	0.589	0.306	0.622	0.201
7	438	292.83	0.858	1.871	0.584	0.293	0.639	0.199
7	439	291.78	0.897	1.850	0.583	0.307	0.634	0.200
7	440	304.37	1.050	1.896	0.592	0.345	0.623	0.195
7	441	261.07	0.883	1.763	0.553	0.338	0.675	0.212
7	442	289.82	0.907	1.786	0.589	0.313	0.616	0.203
7	443	321.90	1.074	1.884	0.636	0.334	0.585	0.198
7	444	326.88	0.975	1.972	0.627	0.298	0.603	0.192
7	445	291.82	0.893	1.790	0.598	0.306	0.613	0.205
8	511	280.45	0.874	1.770	0.614	0.312	0.631	0.219
8	512	311.47	0.873	1.915	0.626	0.280	0.615	0.201
8	513	313.15	0.984	1.900	0.643	0.314	0.607	0.205
8	514	298.20	0.833	1.708	0.615	0.279	0.573	0.206
8	515	298.18	0.882	1.808	0.517	0.296	0.606	0.173
8	516	312.70	0.943	1.916	0.587	0.302	0.613	0.188
8	517	293.32	0.874	1.885	0.593	0.298	0.643	0.202
8	518	287.52	0.935	1.763	0.515	0.325	0.613	0.179
8	519	288.38	0.806	1.809	0.538	0.279	0.627	0.187
8	520	284.71	1.078	1.814	0.575	0.379	0.637	0.202

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	TESTES WEIGHT	% ADRENAL	% THYMUS	% TESTES
5	286	232.79	0.042	0.179	3.518	0.018	0.077	1.511
5	287	283.50	0.088	0.235	5.578	0.031	0.083	1.968
5	288	260.18	0.047	0.222	4.044	0.018	0.085	1.554
5	289	255.62	0.045	0.235	3.623	0.018	0.092	1.417
5	290	255.76	0.053	0.227	4.032	0.021	0.089	1.576
5	291	259.09	0.077	0.286	3.427	0.030	0.110	1.323
5	292	303.17	0.083	0.202	5.779	0.027	0.067	1.906
5	293	290.98	0.074	0.203	5.809	0.025	0.070	1.996
5	294	269.50	0.042	0.248	3.744	0.016	0.092	1.389
5	295	308.20	0.082	0.243	4.792	0.027	0.079	1.555
6	361	285.20	0.053	0.455	4.474	0.019	0.160	1.569
6	362	298.30	0.037	0.271	4.476	0.012	0.091	1.501
6	363	338.30	0.081	0.329	6.641	0.024	0.097	1.963
6	364	319.11	0.049	0.327	4.087	0.015	0.102	1.281
6	365	274.86	0.062	0.381	4.289	0.023	0.139	1.560
6	366	318.04	0.095	0.251	6.358	0.030	0.079	1.999
6	367	323.39	0.045	0.305	4.634	0.014	0.094	1.433
6	368	305.73	0.048	0.237	4.201	0.016	0.078	1.374
6	369	310.94	0.049	0.401	4.195	0.016	0.129	1.349
6	370	327.50	0.046	0.228	4.367	0.014	0.070	1.333
7	436	282.53	0.047	0.222	4.336	0.017	0.079	1.535
7	437	292.95	0.068	0.228	5.571	0.023	0.078	1.902
7	438	292.83	0.043	0.353	4.709	0.015	0.121	1.608
7	439	291.78	0.047	0.294	4.607	0.016	0.101	1.579
7	440	304.37	0.092	0.406	4.547	0.030	0.133	1.494
7	441	261.07	0.064	0.268	5.596	0.025	0.103	2.143
7	442	289.82	0.045	0.256	4.005	0.016	0.088	1.382
7	443	321.90	0.066	0.253	4.629	0.021	0.079	1.438
7	444	326.88	0.055	0.205	4.600	0.017	0.063	1.407
7	445	291.82	0.057	0.288	4.368	0.020	0.099	1.497
8	511	280.45	*	0.182	5.701	*	0.065	2.033
8	512	311.47	0.038	0.242	4.619	0.012	0.078	1.483
8	513	313.15	0.084	0.423	5.297	0.027	0.135	1.692
8	514	298.20	0.040	0.304	4.359	0.013	0.102	1.462
8	515	298.18	0.047	0.357	4.355	0.016	0.120	1.461
8	516	312.70	0.046	0.312	4.697	0.015	0.100	1.502
8	517	293.32	0.060	0.419	4.514	0.020	0.143	1.539
8	518	287.52	0.077	0.296	6.196	0.027	0.103	2.155
8	519	288.38	0.067	0.219	4.138	0.023	0.076	1.435
8	520	284.71	0.052	0.259	5.796	0.018	0.091	2.036

\*Not available

HISTOPATHOLOGY  
DATA

## REPORTS CODE TABLE

N	Tissues within normal histological limits
A	Autolysis precluding adequate evaluation
U	Tissues unavailable/unsuitable for evaluation
P	Present
I	Bilateral
L	Unilateral

1	Minimal
2	Mild
3	Moderate
4	Marked

### Abbreviation List

NOS

Not Otherwise Specified

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1		2		3		4	
NUMBER OF ANIMALS:	10		10		10		10	
	#	%	#	%	#	%	#	%
BRAIN	# EX 10		0		0		10	
SCIATIC NERVE	# EX 10		0		0		10	
SPINAL CORD	# EX 10		0		0		10	
SALIVARY GLAND	# EX 10		0		0		10	
PANCREAS	# EX 10		0		0		10	
Degeneration, Acinar	1	10.0	0	0.0	0	0.0	1	10.0
Lymphocytic Infiltrates	0	0.0	0	0.0	0	0.0	1	10.0
MANDIBULAR LYMPH NODE	# EX 10		0		0		10	
ZYMBAL'S GLAND	# EX 8		0		0		6	
PITUITARY	# EX 10		0		0		10	
ADRENALS	# EX 10		0		0		10	
THYROID	# EX 10		0		0		10	
PARATHYROID	# EX 10		0		0		9	
TRACHEA	# EX 10		0		0		10	
ESOPHAGUS	# EX 10		0		0		10	
THYMUS	# EX 10		0		0		10	
HEART	# EX 10		0		0		10	
Inflammation, Chronic	0	0.0	0	0.0	0	0.0	1	10.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1		2		3		4	
NUMBER OF ANIMALS:	10		10		10		10	
	#	%	#	%	#	%	#	%
AORTA	# EX 10		0		0		10	
COLON	# EX 10		0		0		10	
JEJUNUM	# EX 10		0		0		10	
LIVER	# EX 10		10		10		10	
Inflammation, Chronic	0	0.0	1	10.0	0	0.0	1	10.0
Inflammation, Chronic/Active	1	10.0	0	0.0	0	0.0	0	0.0
SPLEEN	# EX 10		9		10		10	
Fibrosis	1	10.0	1	11.0	0	0.0	1	10.0
Hyperplasia, Erythroid Cell	3	30.0	2	22.0	0	0.0	0	0.0
Pigmentation, NOS	10	100.0	9	100.0	6	60.0	6	60.0
TONGUE	# EX 10		0		0		10	
SKELETAL MUSCLE	# EX 10		1		0		10	
Inflammation, Chronic	0	0.0	1	100.0	0	0.0	0	0.0
Mineralization, NOS	0	0.0	1	100.0	0	0.0	0	0.0
LUNGS	# EX 10		10		10		10	
Lymphocytic Infiltrates, Peribronchiolar	10	100.0	10	100.0	9	90.0	10	100.0
KIDNEY	# EX 10		10		10		10	
Pigmentation, NOS	10	100.0	9	90.0	0	0.0	0	0.0
Mineralization, NOS	6	60.0	7	70.0	4	40.0	8	80.0
Regeneration, Tubular	0	0.0	0	0.0	0	0.0	1	10.0
Lymphocytic Infiltrates, Pelvis	0	0.0	0	0.0	0	0.0	1	10.0
URINARY BLADDER	# EX 10		0		0		10	

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1		2		3		4	
NUMBER OF ANIMALS:	10		10		10		10	
	#	%	#	%	#	%	#	%
STOMACH	# EX 10		0		0		10	
DUODENUM	# EX 10		0		0		10	
ILEUM	# EX 10		0		0		10	
CECUM	# EX 10		0		0		10	
RECTUM	# EX 10		0		0		10	
MESENTERIC LYMPH NODE	# EX 9		0		0		10	
OVARIES	# EX 10		0		2		10	
Cyst, NOS	0	0.0	0	0.0	2	100.0	0	0.0
UTERUS	# EX 10		1		0		10	
Dilatation	3	30.0	1	100.0	0	0.0	4	40.0
MAMMARY GLAND	# EX 10		0		0		10	
SKIN	# EX 10		0		0		10	
CLITORAL GLAND	# EX 10		0		0		10	
Inflammation, Chronic/Active	1	10.0	0	0.0	0	0.0	0	0.0
Lymphocytic Infiltrates	2	20.0	0	0.0	0	0.0	4	40.0
EYES	# EX 10		0		0		10	
HARDERIAN GLAND	# EX 10		0		0		10	
Lymphocytic Infiltrates	7	70.0	0	0.0	0	0.0	5	50.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)



Pathology Associates International  
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Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	10	10	10	10
	# %	# %	# %	# %
NASAL CAVITY	# EX 10	0	0	10
Inflammation, Suppurative	3 30.0	0 0.0	0 0.0	0 0.0
FEMUR	# EX 10	0	0	10
Hyperplasia, Erythroid Cell	9 90.0	0 0.0	0 0.0	0 0.0
STERNUM	# EX 9	0	0	10
Hyperplasia, Erythroid Cell	9 100.0	0 0.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	5		6		7		8	
NUMBER OF ANIMALS:	10		10		10		10	
	#	%	#	%	#	%	#	%
BRAIN	# EX 10		0		0		10	
SCIATIC NERVE	# EX 10		0		0		10	
SPINAL CORD	# EX 10		0		0		10	
SALIVARY GLAND	# EX 10		0		0		10	
PANCREAS	# EX 10		0		0		10	
Degeneration, Acinar	0	0.0	0	0.0	0	0.0	1	10.0
MANDIBULAR LYMPH NODE	# EX 10		0		0		10	
Hyperplasia, Lymphoid	1	10.0	0	0.0	0	0.0	3	30.0
ZYMBAL'S GLAND	# EX 9		0		0		8	
PITUITARY	# EX 10		0		0		10	
ADRENALS	# EX 10		0		0		10	
Accessory Cortical Nodule	0	0.0	0	0.0	0	0.0	1	10.0
THYROID	# EX 10		0		0		10	
PARATHYROID	# EX 7		0		0		8	
TRACHEA	# EX 10		0		0		10	
ESOPHAGUS	# EX 10		0		0		10	
THYMUS	# EX 10		0		0		10	

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	5		6		7		8	
NUMBER OF ANIMALS:	10		10		10		10	
	#	%	#	%	#	%	#	%
HEART	# EX	10	0		0		10	
Inflammation, Chronic		3 30.0	0 0.0		0 0.0		6 60.0	
AORTA	# EX	10	0		0		10	
COLON	# EX	10	0		0		10	
JEJUNUM	# EX	10	0		0		10	
LIVER	# EX	10	10		10		10	
Inflammation, Chronic		0 0.0	0 0.0		0 0.0		1 10.0	
SPLEEN	# EX	10	10		10		10	
Fibrosis		0 0.0	0 0.0		0 0.0		1 10.0	
Hyperplasia, Erythroid Cell		8 80.0	1 10.0		0 0.0		0 0.0	
Pigmentation, NOS		10 100.0	2 20.0		0 0.0		1 10.0	
TONGUE	# EX	10	0		0		10	
SKELETAL MUSCLE	# EX	10	0		0		10	
LUNGS	# EX	10	10		10		10	
Lymphocytic Infiltrates, Peribronchiolar		8 80.0	9 90.0		10 100.0		10 100.0	
Inflammation, Chronic/Active, Pleura		0 0.0	0 0.0		0 0.0		1 10.0	
KIDNEY	# EX	10	10		10		10	
Pigmentation, NOS		10 100.0	1 10.0		0 0.0		0 0.0	
Mineralization, NOS		10 100.0	10 100.0		10 100.0		10 100.0	
Degeneration, Tubular		10 100.0	10 100.0		10 100.0		9 90.0	
Regeneration, Tubular		8 80.0	10 100.0		10 100.0		9 90.0	
Hyaline Droplets		10 100.0	10 100.0		0 0.0		0 0.0	
Lymphocytic Infiltrates		0 0.0	0 0.0		0 0.0		2 20.0	

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5	6	7	8
NUMBER OF ANIMALS:		10	10	10	10
		# %	# %	# %	# %
URINARY BLADDER	# EX	10	0	0	10
Urolith		1 10.0	0 0.0	0 0.0	1 10.0
STOMACH	# EX	10	0	0	10
DUODENUM	# EX	10	0	0	10
ILEUM	# EX	10	0	0	10
CECUM	# EX	10	0	0	10
RECTUM	# EX	10	0	0	10
MESENTERIC LYMPH NODE	# EX	10	0	0	10
TESTES	# EX	10	0	0	10
EPIDIDYMIDES	# EX	10	0	0	10
MAMMARY GLAND	# EX	10	0	0	10
SKIN	# EX	10	0	0	10
PREPUTIAL GLAND	# EX	10	0	0	10
Inflammation, Chronic		1 10.0	0 0.0	0 0.0	1 10.0
Inflammation, Suppurative		1 10.0	0 0.0	0 0.0	3 30.0
Lymphocytic Infiltrates		7 70.0	0 0.0	0 0.0	6 60.0
Inflammation, Subacute		0 0.0	0 0.0	0 0.0	1 10.0
EYES	# EX	10	0	0	10

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

PROJECT SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5	6	7	8
NUMBER OF ANIMALS:		10	10	10	10
		# %	# %	# %	# %
HARDERIAN GLAND	# EX	10	0	0	10
Lymphocytic Infiltrates		2 20.0	0 0.0	0 0.0	0 0.0
NASAL CAVITY	# EX	10	0	0	10
FEMUR	# EX	10	0	0	10
Hyperplasia, Erythroid Cell		9 90.0	0 0.0	0 0.0	3 30.0
STERNUM	# EX	10	0	0	10
Hyperplasia, Erythroid Cell		9 90.0	0 0.0	0 0.0	3 30.0
PROSTATE	# EX	10	0	0	10
SEMINAL VESICLES	# EX	10	10	10	10

Incidence Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
BRAIN	# EX 10	0	0	10
SCIATIC NERVE	# EX 10	0	0	10
SPINAL CORD	# EX 10	0	0	10
SALIVARY GLAND	# EX 10	0	0	10
PANCREAS	# EX 10	0	0	10
Degeneration, Acinar	1 0.10	0 0.00	0 0.00	1 0.10
Lymphocytic Infiltrates	0 0.00	0 0.00	0 0.00	1 0.10
MANDIBULAR LYMPH NODE	# EX 10	0	0	10
ZYMBAL'S GLAND	# EX 8	0	0	6
PITUITARY	# EX 10	0	0	10
ADRENALS	# EX 10	0	0	10
THYROID	# EX 10	0	0	10
PARATHYROID	# EX 10	0	0	9
TRACHEA	# EX 10	0	0	10
ESOPHAGUS	# EX 10	0	0	10
THYMUS	# EX 10	0	0	10
HEART	# EX 10	0	0	10
Inflammation, Chronic	0 0.00	0 0.00	0 0.00	1 0.10

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
AORTA	# EX 10	0	0	10
COLON	# EX 10	0	0	10
JEJUNUM	# EX 10	0	0	10
LIVER	# EX 10	10	10	10
Inflammation, Chronic	0 0.00	1 0.10	0 0.00	1 0.10
Inflammation, Chronic/Active	1 0.10	0 0.00	0 0.00	0 0.00
SPLEEN	# EX 10	9	10	10
Fibrosis	1 0.10	1 0.11	0 0.00	1 0.10
Hyperplasia, Erythroid Cell	3 0.30	2 0.22	0 0.00	0 0.00
Pigmentation, NOS	10 2.30	9 1.33	6 0.60	6 0.60
TONGUE	# EX 10	0	0	10
SKELETAL MUSCLE	# EX 10	1	0	10
Inflammation, Chronic	0 0.00	1 4.00	0 0.00	0 0.00
Mineralization, NOS	0 0.00	1 4.00	0 0.00	0 0.00
LUNGS	# EX 10	10	10	10
Lymphocytic Infiltrates, Peribronchiolar	10 1.90	10 1.60	9 1.30	10 1.90
KIDNEY	# EX 10	10	10	10
Pigmentation, NOS	10 2.20	9 1.00	0 0.00	0 0.00
Mineralization, NOS	6 0.60	7 0.80	4 0.40	8 0.80
Regeneration, Tubular	0 0.00	0 0.00	0 0.00	1 0.10
Lymphocytic Infiltrates, Pelvis	0 0.00	0 0.00	0 0.00	1 0.10
URINARY BLADDER	# EX 10	0	0	10

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
SEVERITY SUMMARY  
-----

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
STOMACH	# EX 10	0	0	10
DUODENUM	# EX 10	0	0	10
ILEUM	# EX 10	0	0	10
CECUM	# EX 10	0	0	10
RECTUM	# EX 10	0	0	10
MESENTERIC LYMPH NODE	# EX 9	0	0	10
OVARIES	# EX 10	0	2	10
UTERUS	# EX 10	1	0	10
Dilatation	3 0.70	1 3.00	0 0.00	4 1.30
MAMMARY GLAND	# EX 10	0	0	10
SKIN	# EX 10	0	0	10
CLITORAL GLAND	# EX 10	0	0	10
Inflammation, Chronic/Active	1 0.40	0 0.00	0 0.00	0 0.00
Lymphocytic Infiltrates	2 0.30	0 0.00	0 0.00	4 0.70
EYES	# EX 10	0	0	10
HARDERIAN GLAND	# EX 10	0	0	10
Lymphocytic Infiltrates	7 1.50	0 0.00	0 0.00	5 0.80
NASAL CAVITY	# EX 10	0	0	10
Inflammation, Suppurative	3 0.30	0 0.00	0 0.00	0 0.00

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Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
FEMUR	# EX 10	0	0	10
Hyperplasia, Erythroid Cell	9 1.40	0 0.00	0 0.00	0 0.00
STERNUM	# EX 9	0	0	10
Hyperplasia, Erythroid Cell	9 1.56	0 0.00	0 0.00	0 0.00

Severity Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
BRAIN	# EX 10	0	0	10
SCIATIC NERVE	# EX 10	0	0	10
SPINAL CORD	# EX 10	0	0	10
SALIVARY GLAND	# EX 10	0	0	10
PANCREAS	# EX 10	0	0	10
Degeneration, Acinar	0 0.00	0 0.00	0 0.00	1 0.10
MANDIBULAR LYMPH NODE	# EX 10	0	0	10
Hyperplasia, Lymphoid	1 0.20	0 0.00	0 0.00	3 0.50
ZYMBAL'S GLAND	# EX 9	0	0	8
PITUITARY	# EX 10	0	0	10
ADRENALS	# EX 10	0	0	10
THYROID	# EX 10	0	0	10
PARATHYROID	# EX 7	0	0	8
TRACHEA	# EX 10	0	0	10
ESOPHAGUS	# EX 10	0	0	10
THYMUS	# EX 10	0	0	10
HEART	# EX 10	0	0	10
Inflammation, Chronic	3 0.30	0 0.00	0 0.00	6 0.60

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
AORTA	# EX 10	0	0	10
COLON	# EX 10	0	0	10
JEJUNUM	# EX 10	0	0	10
LIVER	# EX 10	10	10	10
Inflammation, Chronic	0 0.00	0 0.00	0 0.00	1 0.10
SPLEEN	# EX 10	10	10	10
Fibrosis	0 0.00	0 0.00	0 0.00	1 0.10
Hyperplasia, Erythroid Cell	8 1.20	1 0.10	0 0.00	0 0.00
Pigmentation, NOS	10 1.50	2 0.20	0 0.00	1 0.10
TONGUE	# EX 10	0	0	10
SKELETAL MUSCLE	# EX 10	0	0	10
LUNGS	# EX 10	10	10	10
Lymphocytic Infiltrates, Peribronchiolar	8 1.20	9 1.40	10 1.00	10 1.80
Inflammation, Chronic/Active, Pleura	0 0.00	0 0.00	0 0.00	1 0.20
KIDNEY	# EX 10	10	10	10
Pigmentation, NOS	10 1.10	1 0.10	0 0.00	0 0.00
Mineralization, NOS	10 1.60	10 2.00	10 1.30	10 1.20
Degeneration, Tubular	10 1.80	10 1.90	10 1.60	9 1.40
Regeneration, Tubular	8 1.00	10 1.30	10 1.00	9 0.90
Hyaline Droplets	10 2.50	10 1.90	0 0.00	0 0.00
Lymphocytic Infiltrates	0 0.00	0 0.00	0 0.00	2 0.20
URINARY BLADDER	# EX 10	0	0	10

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
STOMACH	# EX 10	0	0	10
DUODENUM	# EX 10	0	0	10
ILEUM	# EX 10	0	0	10
CECUM	# EX 10	0	0	10
RECTUM	# EX 10	0	0	10
MESENTERIC LYMPH NODE	# EX 10	0	0	10
TESTES	# EX 10	0	0	10
EPIDIDYMIDES	# EX 10	0	0	10
MAMMARY GLAND	# EX 10	0	0	10
SKIN	# EX 10	0	0	10
PREPUTIAL GLAND	# EX 10	0	0	10
Inflammation, Chronic	1 0.20	0 0.00	0 0.00	1 0.20
Inflammation, Suppurative	1 0.20	0 0.00	0 0.00	3 0.80
Lymphocytic Infiltrates	7 0.90	0 0.00	0 0.00	6 1.10
Inflammation, Subacute	0 0.00	0 0.00	0 0.00	1 0.20
EYES	# EX 10	0	0	10
HARDERIAN GLAND	# EX 10	0	0	10
Lymphocytic Infiltrates	2 0.20	0 0.00	0 0.00	0 0.00
NASAL CAVITY	# EX 10	0	0	10

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

SEVERITY SUMMARY

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	10	10	10	10
FEMUR	# SEV 10	# SEV 0	# SEV 0	# SEV 10
Hyperplasia, Erythroid Cell	9 1.50	0 0.00	0 0.00	3 0.30
STERNUM	# EX 10	0	0	10
Hyperplasia, Erythroid Cell	9 1.50	0 0.00	0 0.00	3 0.30
PROSTATE	# EX 10	0	0	10
SEMINAL VESICLES	# EX 10	10	10	10

Severity Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
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STUDY ID : 3 Month Sacrifice	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	1	2	3	4	5	6	7	8	9	10
BRAIN	N	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N	N
PANCREAS	N	N		N	N	N	N	N	N	N
Degeneration, Acinar	-	-	1	-	-	-	-	-	-	-
MANDIBULAR LYMPH NODE	N	N	N	N	N	N	N	N	N	N
ZYMBAL'S GLAND	N	N	U	U	N	N	N	N	N	N
PITUITARY	N	N	N	N	N	N	N	N	N	N
ADRENALS	N	N	N	N	N	N	N	N	N	N
THYROID	N	N	N	N	N	N	N	N	N	N
PARATHYROID	N	N	N	N	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N	N
THYMUS	N	N	N	N	N	N	N	N	N	N
HEART	N	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
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STUDY ID : 3 Month Sacrifice  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE  
-----

ANIMAL ID:	1	2	3	4	5	6	7	8	9	10
AORTA	N	N	N	N	N	N	N	N	N	N
COLON	N	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N	N
LIVER	N		N	N	N	N	N	N	N	N
Inflammation, Chronic/Active	-	1	-	-	-	-	-	-	-	-
SPLEEN										
Fibrosis	-	-	-	1	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	-	-	-	-	-	-	1	1	-	1
Pigmentation, NOS	2	3	2	2	3	3	2	2	2	2
TONGUE	N	N	N	N	N	N	N	N	N	N
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N	N
LUNGS										
Lymphocytic Infiltrates, Peribronchiolar	1	2	2	2	2	2	2	2	2	2
KIDNEY										
Pigmentation, NOS	2	3	2	2	3	2	2	2	2	2
Mineralization, NOS	1	1	1	-	1	-	1	-	-	1
URINARY BLADDER	N	N	N	N	N	N	N	N	N	N
STOMACH	N	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

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TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

-----

ANIMAL ID:	1	2	3	4	5	6	7	8	9	10
CECUM	N	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	U	N	N	N	N	N	N
OVARIES	N	N	N	N	N	N	N	N	N	N
UTERUS	N	N	N		N	N	N	N		
Dilatation	-	-	-	3L	-	-	-	-	2I	2L
MAMMARY GLAND	N	N	N	N	N	N	N	N	N	N
SKIN	N	N	N	N	N	N	N	N	N	N
CLITORAL GLAND	N	N	N	N		N	N		N	
Inflammation, Chronic/Active	-	-	-	-	4	-	-	-	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	-	2	-	1
EYES	N	N	N	N	N	N	N	N	N	N
HARDERIAN GLAND	N			N	N					
Lymphocytic Infiltrates	-	2	2	-	-	2	2	4	2	1
NASAL CAVITY	N			N		N	N	N	N	N
Inflammation, Suppurative	-	1	1	-	1	-	-	-	-	-
FEMUR							N			
Hyperplasia, Erythroid Cell	1	2	2	1	2	1	-	2	2	1
STERNUM							U			
Hyperplasia, Erythroid Cell	1	2	2	1	2	1	-	2	2	1

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	76	77	78	79	80	81	82	83	84	85
LIVER	N	N	N		N	N	N	N	N	N
Inflammation, Chronic	-	-	-	1	-	-	-	-	-	-
SPLEEN						U				
Fibrosis	-	-	1	-	-	-	-	-	-	-
Hyperplasia, Erythroid Cell	-	-	-	-	1	-	-	1	-	-
Pigmentation, NOS	2	2	2	1	1	-	1	1	1	1
SKELETAL MUSCLE										
Inflammation, Chronic	-	4	-	-	-	-	-	-	-	-
Mineralization, NOS	-	4	-	-	-	-	-	-	-	-
LUNGS										
Lymphocytic Infiltrates, Peribronchiolar	2	2	2	2	1	2	2	1	1	1
KIDNEY									N	
Pigmentation, NOS	1	1	1	2	1	1	1	1	-	1
Mineralization, NOS	1	1	-	2	1	1	1	1	-	-
UTERUS										
Dilatation	-	-	-	-	-	-	31	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	151	152	153	154	155	156	157	158	159	160
LIVER	N	N	N	N	N	N	N	N	N	N
SPLEEN		N			N			N		N
Pigmentation, NOS	1	-	1	1	-	1	1	-	1	-
LUNGS								N		
Lymphocytic Infiltrates, Peribronchiolar	2	2	1	2	1	1	2	-	1	1
KIDNEY			N	N	N			N	N	N
Mineralization, NOS	1	1	-	-	-	1	1	-	-	-
OVARIES										
Cyst, NOS	P	-	-	-	P	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE  
-----

ANIMAL ID:	226	227	228	229	230	231	232	233	234	235
BRAIN	N	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N	N
PANCREAS	N		N		N	N	N	N	N	N
Degeneration, Acinar	-	-	-	1	-	-	-	-	-	-
Lymphocytic Infiltrates	-	1	-	-	-	-	-	-	-	-
MANDIBULAR LYMPH NODE	N	N	N	N	N	N	N	N	N	N
ZYMBAL'S GLAND	N	N	N	N	N	N	U	U	U	U
PITUITARY	N	N	N	N	N	N	N	N	N	N
ADRENALS	N	N	N	N	N	N	N	N	N	N
THYROID	N	N	N	N	N	N	N	N	N	N
PARATHYROID	N	N	N	N	N	U	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N	N
THYMUS	N	N	N	N	N	N	N	N	N	N
HEART	N		N	N	N	N	N	N	N	N
Inflammation, Chronic	-	1	-	-	-	-	-	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 4
DAYS ON TEST: ALL	SEX: FEMALE

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ANIMAL ID:	226	227	228	229	230	231	232	233	234	235
AORTA	N	N	N	N	N	N	N	N	N	N
COLON	N	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N	N
LIVER	N		N	N	N	N	N	N	N	N
Inflammation, Chronic	-	1	-	-	-	-	-	-	-	-
SPLEEN			N			N	N			N
Fibrosis	-	-	-	-	-	-	-	-	1	-
Pigmentation, NOS	1	1	-	1	1	-	-	1	1	-
TONGUE	N	N	N	N	N	N	N	N	N	N
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N	N
LUNGS										
Lymphocytic Infiltrates, Peribronchiolar	2	3	2	2	1	1	2	2	2	2
KIDNEY			N					N		
Mineralization, NOS	1	1	-	1	1	1	1	-	1	1
Regeneration, Tubular	-	-	-	-	-	1	-	-	-	-
Lymphocytic Infiltrates, Pelvis	-	1	-	-	-	-	-	-	-	-
URINARY BLADDER	N	N	N	N	N	N	N	N	N	N
STOMACH	N	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	226	227	228	229	230	231	232	233	234	235
CECUM	N	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N	N	N	N	N	N	N
OVARIES	N	N	N	N	N	N	N	N	N	N
UTERUS	N	N	N			N			N	N
Dilatation	-	-	-	4I	4I	-	4I	1I	-	-
MAMMARY GLAND	N	N	N	N	N	N	N	N	N	N
SKIN	N	N	N	N	N	N	N	N	N	N
CLITORAL GLAND	N		N	N	N	N				N
Lymphocytic Infiltrates	-	1	-	-	-	-	3	1	2	-
EYES	N	N	N	N	N	N	N	N	N	N
HARDERIAN GLAND	N				N	N	N		N	
Lymphocytic Infiltrates	-	1	2	1	-	-	-	2	-	2
NASAL CAVITY	N	N	N	N	N	N	N	N	N	N
FEMUR	N	N	N	N	N	N	N	N	N	N
STERNUM	N	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	286	287	288	289	290	291	292	293	294	295
BRAIN	N	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N	N
PANCREAS	N	N	N	N	N	N	N	N	N	N
MANDIBULAR LYMPH NODE	N	N	N	N	N	N		N	N	N
Hyperplasia, Lymphoid	-	-	-	-	-	-	2	-	-	-
ZYMBAL'S GLAND	N	N	N	N	N	N	N	U	N	N
PITUITARY	N	N	N	N	N	N	N	N	N	N
ADRENALS	N	N	N	N	N	N	N	N	N	N
THYROID	N	N	N	N	N	N	N	N	N	N
PARATHYROID	N	N	N	U	N	U	U	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N	N
THYMUS	N	N	N	N	N	N	N	N	N	N
HEART			N	N	N	N		N	N	N
Inflammation, Chronic	1	1	-	-	-	-	1	-	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE  
-----

ANIMAL ID:	286	287	288	289	290	291	292	293	294	295
AORTA	N	N	N	N	N	N	N	N	N	N
COLON	N	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N	N
LIVER	N	N	N	N	N	N	N	N	N	N
SPLEEN										
Hyperplasia, Erythroid Cell	-	1	-	1	2	2	2	2	1	1
Pigmentation, NOS	1	2	2	1	2	1	2	1	2	1
TONGUE	N	N	N	N	N	N	N	N	N	N
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N	N
LUNGS						N			N	
Lymphocytic Infiltrates, Peribronchiolar	1	2	1	1	2	-	1	2	-	2
KIDNEY										
Pigmentation, NOS	1	1	1	2	1	1	1	1	1	1
Mineralization, NOS	1	1	1	2	2	2	2	2	1	2
Degeneration, Tubular	2	2	2	1	1	2	2	2	2	2
Regeneration, Tubular	1	1	1	-	-	1	2	2	1	1
Hyaline Droplets	2	3	3	2	2	3	3	3	2	2
URINARY BLADDER										
Urolith	P	-	-	-	-	-	-	-	-	-
STOMACH	N	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	286	287	288	289	290	291	292	293	294	295
ILEUM	N	N	N	N	N	N	N	N	N	N
CECUM	N	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N	N	N	N	N	N	N
TESTES	N	N	N	N	N	N	N	N	N	N
EPIDIDYMIDES	N	N	N	N	N	N	N	N	N	N
MAMMARY GLAND	N	N	N	N	N	N	N	N	N	N
SKIN	N	N	N	N	N	N	N	N	N	N
PREPUTIAL GLAND					N		N			
Inflammation, Chronic	-	-	-	-	-	-	-	2	-	-
Inflammation, Suppurative	-	-	-	-	-	-	-	-	-	2
Lymphocytic Infiltrates	1	3	1	1	-	1	-	-	1	1
EYES	N	N	N	N	N	N	N	N	N	N
HARDERIAN GLAND	N	N	N		N	N		N	N	N
Lymphocytic Infiltrates	-	-	-	1	-	-	1	-	-	-
NASAL CAVITY	N	N	N	N	N	N	N	N	N	N
FEMUR						N				
Hyperplasia, Erythroid Cell	2	2	1	2	1	-	2	2	1	2
STERNUM						N				
Hyperplasia, Erythroid Cell	2	2	1	2	1	-	2	2	1	2

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE

ANIMAL ID:

286 287 288 289 290 291 292 293 294 295

PROSTATE

N N N N N N N N N N

SEMINAL VESICLES

N N N N N N N N N N

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 6
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	361	362	363	364	365	366	367	368	369	370
LIVER	N	N	N	N	N	N	N	N	N	N
SPLEEN	N		N		N	N	N	N	N	N
Hyperplasia, Erythroid Cell	-	1	-	-	-	-	-	-	-	-
Pigmentation, NOS	-	1	-	1	-	-	-	-	-	-
LUNGS			N							
Lymphocytic Infiltrates, Peribronchiolar	1	1	-	2	2	2	1	1	2	2
KIDNEY										
Pigmentation, NOS	1	-	-	-	-	-	-	-	-	-
Mineralization, NOS	2	2	2	2	2	2	2	2	2	2
Degeneration, Tubular	2	2	2	2	2	2	2	2	1	2
Regeneration, Tubular	2	2	1	2	1	1	1	1	1	1
Hyaline Droplets	2	2	2	2	2	2	2	2	1	2
SEMINAL VESICLES	N	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	436	437	438	439	440	441	442	443	444	445
LIVER	N	N	N	N	N	N	N	N	N	N
SPLEEN	N	N	N	N	N	N	N	N	N	N
LUNGS										
Lymphocytic Infiltrates, Peribronchiolar	1	1	1	1	1	1	1	1	1	1
KIDNEY										
Mineralization, NOS	1	2	1	1	1	2	1	1	2	1
Degeneration, Tubular	1	2	2	2	2	1	1	2	2	1
Regeneration, Tubular	1	1	1	1	1	1	1	1	1	1
SEMINAL VESICLES	N	N	N	N	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 8
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	511	512	513	514	515	516	517	518	519	520
BRAIN	N	N	N	N	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N	N
PANCREAS	N		N	N	N	N	N	N	N	N
Degeneration, Acinar	-	1	-	-	-	-	-	-	-	-
MANDIBULAR LYMPH NODE	N	N	N		N	N	N		N	
Hyperplasia, Lymphoid	-	-	-	2	-	-	-	2	-	1
ZYMBAL'S GLAND	N	N	N	N	U	U	N	N	N	N
PITUITARY	N	N	N	N	N	N	N	N	N	N
ADRENALS	N	N	N	N	N		N	N	N	N
Accessory Cortical Nodule	-	-	-	-	-	P	-	-	-	-
THYROID	N	N	N	N	N	N	N	N	N	N
PARATHYROID	N	U	N	U	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N	N
THYMUS	N	N	N	N	N	N	N	N	N	N
HEART					N		N		N	N
Inflammation, Chronic	1	1	1	1	-	1	-	1	-	-

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	511	512	513	514	515	516	517	518	519	520
AORTA	N	N	N	N	N	N	N	N	N	N
COLON	N	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N	N
LIVER	N	N	N	N		N	N	N	N	N
Inflammation, Chronic	-	-	-	-	1	-	-	-	-	-
SPLEEN	N	N		N		N	N	N	N	N
Fibrosis	-	-	-	-	1	-	-	-	-	-
Pigmentation, NOS	-	-	1	-	-	-	-	-	-	-
TONGUE	N	N	N	N	N	N	N	N	N	N
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N	N
LUNGS										
Lymphocytic Infiltrates, Peribronchiolar	2	2	2	2	2	2	1	2	1	2
Inflammation, Chronic/Active, Pleura	-	-	-	-	-	-	-	-	-	2
KIDNEY										
Mineralization, NOS	1	1	1	1	1	1	1	1	2	2
Degeneration, Tubular	1	-	1	2	1	2	1	2	2	2
Regeneration, Tubular	1	1	1	1	1	1	1	-	1	1
Lymphocytic Infiltrates	-	1	-	-	-	-	1	-	-	-
URINARY BLADDER										
Urolith	-	-	-	P	-	-	-	-	-	-
STOMACH	N	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N	N

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 3 Month Sacrifice

FATE: ALL

DAYS ON TEST: ALL

STUDY NUMBER: 93-004

GROUP: 8

SEX: MALE  
-----

ANIMAL ID:	511	512	513	514	515	516	517	518	519	520
ILEUM	N	N	N	N	N	N	N	N	N	N
CECUM	N	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N	N	N	N	N	N	N
TESTES	N	N	N	N	N	N	N	N	N	N
EPIDIDYMIDES	N	N	N	N	N	N	N	N	N	N
MAMMARY GLAND	N	N	N	N	N	N	N	N	N	N
SKIN	N	N	N	N	N	N	N	N	N	N
PREPUTIAL GLAND				N						
Inflammation, Chronic	-	-	-	-	2	-	-	-	-	-
Inflammation, Suppurative	-	-	-	-	-	3	-	-	4	1
Lymphocytic Infiltrates	1	1	-	-	-	2	2	2	3	-
Inflammation, Subacute	-	-	2	-	-	-	-	-	-	-
EYES	N	N	N	N	N	N	N	N	N	N
HARDERIAN GLAND	N	N	N	N	N	N	N	N	N	N
NASAL CAVITY	N	N	N	N	N	N	N	N	N	N
FEMUR	N			N	N	N	N		N	N
Hyperplasia, Erythroid Cell	-	1	1	-	-	-	-	1	-	-
STERNUM	N			N	N	N	N		N	N
Hyperplasia, Erythroid Cell	-	1	1	-	-	-	-	1	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

TABULATED ANIMAL DATA

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE

ANIMAL ID:	511	512	513	514	515	516	517	518	519	520
PROSTATE	N	N	N	N	N	N	N	N	N	N
SEMINAL VESICLES	N	N	N	N	N	N	N	N	N	N

See Reports Code Table for Symbol Definitions

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
CORRELATION OF GROSS & MICRO  
-----

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

No Gross Observations for any animal in this group

-----  
(REPORT CONTINUED)



Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 3 Month Sacrifice

FATE: ALL

DAYS ON TEST: ALL

STUDY NUMBER: 93-004

GROUP: 2

SEX: FEMALE

Animal ID: 77

Pathology NO:

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 92

Reference to Necropsy Record:

SKELETAL MUSCLE - Nodule, 5x4x2 mm, Irregular, Hard,  
White

Related Histopathology:

SKELETAL MUSCLE - Inflammation, Chronic; SKELETAL  
MUSCLE - Mineralization, NOS

Animal ID: 81

Pathology NO:

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 92

Reference to Necropsy Record:

OVARIES - Bilateral, Cysts, 2, (Right) 8x7x3 mm,  
(Left) 8x6x3 mm, Irregular, Soft, Tan

Related Histopathology:

OVARIES - No Corollary change detected

Animal ID: 82

Pathology NO:

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 92

Reference to Necropsy Record:

UTERUS - Bilateral, Enlarged, Moderate

Related Histopathology:

UTERUS - Dilatation

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

---

CORRELATION OF GROSS & MICRO

---

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE

---

Animal ID: 151

Pathology NO:

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 92

---

Reference to Necropsy Record:

Related Histopathology:

OVARIES - Left, Cyst, 10x5x2 mm, Irregular, Soft,  
Yellow

OVARIES - Cyst, NOS

---

Animal ID: 155

Pathology NO:

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 92

---

Reference to Necropsy Record:

Related Histopathology:

OVARIES - Left, Cyst, 8x7x5 mm, Irregular, Soft, Tan

OVARIES - Cyst, NOS

---

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 229

Pathology NO:

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 92

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Enlarged, Moderate

UTERUS - Dilatation

Animal ID: 230

Pathology NO:

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 92

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Enlarged, Moderate

UTERUS - Dilatation

Animal ID: 232

Pathology NO:

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 92

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Enlarged, Moderate

UTERUS - Dilatation

(END OF REPORT)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 291

Pathology NO:

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 92

Reference to Necropsy Record:

Related Histopathology:

TESTES - Bilateral, Decreased in size, (Right) 17x8x8  
mm, (Left) 19x11x11 mm

TESTES - No Microscopic Observation

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 6

DAYS ON TEST: ALL

SEX: MALE

No Gross Observations for any animal in this group

(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

-----  
CORRELATION OF GROSS & MICRO  
-----

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE  
-----

No Gross Observations for any animal in this group

-----  
(REPORT CONTINUED)

Pathology Associates International  
EPA Study Number 93-004  
Chronic Bioassay of TNB in Fischer 344 Rats

CORRELATION OF GROSS & MICRO

STUDY ID : 3 Month Sacrifice

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE

No Gross Observations for any animal in this group

(END OF REPORT)

FOOD AND WATER  
CONSUMPTION



Food Consumption  
(g/wk)  
Females

Dose Group (mg TNB/kg diet)

Week	300	60	5	0
1 *	27.75±1.53	27.98±0.87	31.67±0.66	31.10±0.78
2	75.48±1.02	76.21±1.60	77.31±1.17	79.25±1.65
3	76.22±1.53	74.48±1.62	78.12±1.15	81.81±1.85
4	78.71±2.12	83.25±1.37	80.79±2.79	86.91±2.17
5	73.05±2.63	82.21±1.97	83.72±1.81	82.81±2.35
6	75.63±2.36	75.94±3.95	80.01±1.98	85.40±2.12
7	83.30±2.13	90.80±1.70	93.19±1.78	94.96±2.42
8	61.36±1.59	66.05±1.61	63.47±1.23	70.02±1.60
9	77.67±0.83	80.94±1.52	82.94±2.42	91.32±1.78
10	76.40±0.90	84.24±1.80	88.10±2.31	92.66±1.57
11	84.38±1.43	91.17±2.13	96.40±1.72	102.28±1.88
12	61.19±2.73	62.39±1.97	70.32±2.45	73.94±2.45

Mean ±Standard Error

\* Data from 3 days

Food Consumption  
(g/wk)  
Males

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	39.08±1.30	49.98±0.98	51.86±0.89	57.92±10.45
2	168.81±8.98	183.07±8.17	183.87±5.46	145.58±7.85
3	101.03±2.09	117.70±2.27	114.89±6.73	117.11±2.69
4	108.51±1.94	120.21±1.84	118.68±1.95	114.34±2.39
5	108.83±1.13	118.78±2.66	116.94±2.17	118.15±2.27
6 *	47.41±6.75	53.83±7.76	50.85±5.00	82.86±7.26
7	104.04±1.81	118.58±2.52	114.64±2.81	116.69±1.92
8	102.33±1.85	84.55±30.05	108.49±3.76	112.29±2.06
9	101.57±3.04	119.16±3.24	111.11±3.93	112.80±1.74
10	108.77±2.57	120.09±1.90	114.93±2.80	113.67±4.73
11	102.04±2.40	122.24±3.20	116.64±2.76	117.31±2.70
12	93.64±2.53	115.62±3.39	106.71±3.69	107.97±2.30

Mean ±Standard Error

\* Data from 3 days

Water Consumption  
(g/wk)  
Females

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	42.00±1.65	37.57±1.20	41.59±1.60	42.34±2.15
2	119.12±3.72	106.52±2.23	110.56±3.38	107.90±3.13
3	121.22±4.41	108.09±3.40	170.00±53.69	109.62±3.06
4	129.91±3.52	116.76±3.24	119.55±2.70	115.92±2.77
5	125.30±3.37	117.91±2.77	119.05±3.27	114.34±2.39
6	124.53±2.05	112.88±5.09	119.24±2.58	117.23±2.38
7	148.23±2.80	137.27±3.42	139.84±3.41	138.18±3.00
8	110.73±2.79	103.12±2.93	101.70±2.43	100.92±2.47
9	134.01±2.67	125.07±3.00	124.00±3.10	127.90±3.16
10	129.76±3.33	126.36±2.05	124.94±3.41	127.11±2.67
11	150.70±3.16	131.83±8.11	137.07±4.25	138.11±3.69
12	107.77±1.21	96.52±6.03	98.98±1.87	100.46±2.59

Mean ±Standard Error

\* Data from 3 days

Water Consumption  
(g/wk)  
Males

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	52.14±2.14	64.14±1.34	65.29±1.54	60.50±1.73
2 **	219.88±4.49	238.59±7.37	243.87±3.80	241.33±3.38
3	138.97±4.01	155.21±4.45	149.08±4.01	145.72±2.63
4	146.26±3.33	158.75±3.71	147.14±4.55	142.55±3.46
5	146.90±2.15	152.56±3.86	142.51±3.41	143.46±3.19
6 *	67.46±4.51	67.87±7.13	48.90±5.98	53.52±5.75
7	145.09±3.70	158.12±4.13	144.17±3.60	145.25±3.61
8	140.47±3.85	154.47±4.40	142.71±4.81	133.04±2.25
9	142.97±3.67	155.85±4.46	142.17±5.32	143.38±3.66
10	154.97±3.83	157.64±5.02	143.81±4.14	139.37±6.97
11	145.05±3.64	157.50±3.96	141.20±4.30	140.26±4.18
12	133.12±2.87	141.39±3.29	126.65±4.25	128.39±3.48

Mean ±Standard Error

\* Data from 3 days; \*\*Data from 11 days

## APPENDIX K

INTERIM SACRIFICE - 6 MONTHS

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
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6. AUTHOR(S) Tirumuru V. Reddy, F. B. Daniel, G. R. Olson, J. Torsella, B. Wiechman, G. Reddy			8. PERFORMING ORGANIZATION REPORT NUMBER	
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13. ABSTRACT Chronic toxic effects of 1,3,5-trinitrobenzene (TNB) in male and female Fischer rats were evaluated by feeding certified powdered laboratory chow diet supplemented with varied concentrations of TNB (0, 5, 60 and 300 mg/kg diet). This report discusses the six month findings of this two year study. Food intake was significantly reduced in the 300 mg/kg dose group of both sexes while terminal body weights were reduced in females only in this same dose group. The calculated average TNB consumption for females was 0.27, 3.23 and 14.37 mg/kg/day and 0.28, 3.22 and 15.69 mg/kg/day for males. An increase in the relative spleen weight of both sexes in the 300 mg/kg dose group was noted along with an increase in methemoglobin formation. Relative liver weights was increased in the 300 mg/kg dose group of both sexes while the relative kidney weight was increased in males only in this same dose group. Hematology data indicated an elevated WBC count in both sexes in the 300 mg/kg dose group while the RBC count was reduced in all male dose groups and the 300 mg/kg female group. Hemoglobin, hematocrit, platelets and reticulocytes were also altered when compared to controls. Histopathological examinations suggested that the susceptible organs for TNB toxicity were kidneys (excessive hyaline droplets) and spleen (erythroid cell hyperplasia) in the 60 and 300 mg/kg groups.				
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### **Study Personnel**

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### **Study Timetable:**

Study Initiation: August 17, 1993

Initiation of Dosing: August 30, 1993

Interim Necropsy: March 1 and 2, 1994

## INTRODUCTION

Nitroaromatics, such as 1,3-dinitrobenzene (DNB), 1,3,5-trinitrobenzene (TNB), and N-methyl-N,2,4,6-tetranitroaniline (tetryl), have been detected as environmental contaminants of groundwater and soil near production sites and in some instances at military test grounds. TNB is formed as a by-product during 2,4,6-trinitrotoluene (TNT) production and can be formed through photochemical oxidative degradation of 2,4-dinitrotoluene a by-product released into the environment from TNT manufacturing (Burlinson, 1980; Spanggord et.al., 1982). TNB is not easily biodegradable, persists in the environment, eventually leaches out, and contaminates groundwater near waste disposal sites (Garman et.al., 1987). Exposure to TNB can occur through contact with wastewaters and soil at the original production sites and other plants devoted to munitions assembly which contain large quantities of these nitroaromatic compounds (Walsh and Jenkins, 1992).

Toxicity data on these compounds are limited. The oral LD<sub>50</sub> of DNB, TNB and tetryl were 59 mg/kg, 284 mg/kg and greater than 5 g/kg, respectively, in rats for combined sexes. TNB and tetryl were not toxic at 2 g/kg when applied to rabbit skin for 24 hours. However, the dermal LD<sub>50</sub> of DNB was 1.99 g/kg for combined sexes of rabbits. None of these compounds produced skin irritation but positive (DNB) and severe (TNB, tetryl) eye irritation potentials in rabbits were noted. The sensitization tests showed that DNB and tetryl are not skin sensitizers while TNB caused mild allergic reaction in guinea pigs (Fitzgerald et. al., 1992 a,b,c). Some of the toxicological effects of TNB are: formation of methemoglobin, testicular degeneration and reproductive failure, weight loss and anemia in hamsters, rats and mice. Neurological and hematological disorders have also been reported in dogs. DNB is toxic to humans; the estimated lethal dose range is 5-50 mg/kg and is readily absorbed through the skin (Von Burg, 1989). Tetryl was observed to be a powerful skin sensitizer in ammunition plant workers with dermatitis, liver atrophy, spleen effects, headaches, weight loss and respiratory irritation reported following exposure (U.S. EPA, 1990). Atmospheric concentration of 1.5 mg/m<sup>3</sup> or below did not produce systemic poisoning in persons working with tetryl. DNB, TNB and tetryl have been shown to be genotoxic in the Salmonella mutagenesis assay (McGregor et. al., 1989) while TNB and DNB have been shown to form adducts of blood proteins and tissue DNA in rats (Reddy et. al.; 1991, 1995).

### Objective of the Study

This study was conducted in order to evaluate the toxicity of 1,3,5-trinitrobenzene when administered in the diet for a two year period.



## MATERIALS AND METHODS

### Test Material Preparation

1,3,5-Trinitrobenzene powder (CAS #99-35-4) was supplied by the U.S. Army Biomedical Research and Development Laboratory. Analysis by HPLC revealed no detectable impurities. Certified powdered Purina Laboratory Chow 5002 was purchased (Ralston-Purina Co., St. Louis, MO) and stored at 4°C until used. First, 0.3 g of TNB was added to 50 g of powdered diet in a mortar and thoroughly ground with a pestle. Afterwards 250 g of the diet was added and mixed for 15 minutes followed by 350 g and mixed for an additional 15 minutes. Finally, the remaining diet (350 g) was added and mixed for 30 minutes in a mechanical mixer (Kitchen Aid, St. Joseph, MI) for uniform distribution of TNB in the diet. This was verified by determining the TNB concentration in the diet, taken from each of the 1 kg mixtures, by quantitative analysis done by HPLC. The premixed diet (0.3 g/kg) was further diluted with fresh powdered diet to obtain the desired TNB concentration in the lower dose groups. The diet feeders were changed twice a week.

Analyses of the TNB-feed mixtures were carried out on acetone extracts of the mixtures, utilizing a Waters 600E chromatography system (Waters, Milford, MA), equipped with a 490E programmable multiwavelength detector, operating at 245 nm. The entire chromatography system was interfaced with a Berthold HPLC computer program, Version 1.65 (Berthold, Nashua, NH). The TNB was eluted from a Zorbax C-8 column (9.4 mm x 25 cm) (MAC-DOD Analytical, Chadds Ford, PA) with a water-methanol gradient, at a flow rate of 3 ml/min. Working standards were prepared in Burdick and Jackson HPLC grade high purity methanol (Baxter, Oletz, OH).

### Animals and Maintenance

Male and female Fischer 344 rats, confirmed free of viral antibodies, bacteria and parasites, were obtained from Charles River Laboratories, Kingston, New York. The animals, 7-8 weeks old and weighing approximately 140-175 g when delivered, were held for 1 week in quarantine prior to initiation of treatment. The animals were housed in a temperature (22-23°C) and humidity (40-60%) controlled room on a 12:12 hour light:dark cycle. For the study, they were housed individually in polycarbonate cages and water was administered ad libitum. Animal identification was done using electronic implants (Bio Medic, Maywood, NJ) with the rats assigned to control and treatment groups according to a computer-generated set of random numbers. The weight variation of the animals of each sex used did not exceed  $\pm 2$  s.d. of the mean weight at the time of delivery. The cages were identified with a color-coded identification card indicating the animal and treatment group. All aspects of the study were conducted in compliance with the guidelines of the American Association for Accreditation of Laboratory Animal Care.

All rats were observed daily for physiological and behavioral responses as well as for mortality or morbidity. Food and water consumption were recorded twice weekly. Body weights were taken prior to the start of the study, once weekly during the study and at the final sacrifice.

### Experiment Groups

Group	Interim Sac. No. of Animals	Sex	mg TNB/kg diet
1	10	F	300
2	10	F	60
3	10	F	5
4	10	F	0
5	10	M	300
6	10	M	60
7	10	M	5
8	10	M	0

### Hematology and Clinical Chemistry

Hematology parameters were assessed using a Serono-Baker Hematology Analyzer, Model 9000 (Serono-Baker, Allentown, PA). Total red and white blood cell counts, platelet count, differential leukocyte count, hemoglobin, packed cell volume, reticulocytes, MCV, MCH, MCHC and Heinz bodies were measured and computed. Methemoglobin samples were analyzed on a IL 482 Co-Oximeter.

Clinical chemistry was performed using a COBAS Fara II centrifugal analyzer (Roche, Nutley, NJ) with a non-selective electrode module. Clinical chemistry analytes included sodium, potassium, total protein, albumin, calcium, phosphorus, total bilirubin, blood urea nitrogen, creatinine, alanine aminotransferase, triglycerides, aspartate aminotransferase, glucose and alkaline phosphatase.

### Statistical Evaluation

Males and females were considered separately in all statistical analyses. A one-factor (dose) analysis of variance (ANOVA) was used to analyze normally distributed measures: body weights, organ weights, organ weight ratios, food and water consumption, hematology and clinical chemistry. When a treatment effect was noted ( $p \leq 0.05$ , F-test) the difference between the control and the treatment groups was probed using a multiple comparison procedure (Dunnett's t-test). Due to the high variability of some of the measures, a nonparametric analysis of variance, the Wilcoxon Rank Sum Test, was used where appropriate.

### Necropsy and Histopathology

Prior to necropsy, the animals were anesthetized with pentobarbital (60 mg/kg b.w., i. p.) and blood samples were collected via cardiac puncture after the body weight was recorded. Following euthanasia via exsanguination, all external surfaces, orifices, all organs, and the thoracic, abdominal and pelvic cavities were examined for gross lesions.

During necropsy the following tissues were weighed: brain, liver, spleen, kidneys, adrenals, lungs, thymus, testes w/epididymides, ovaries, and heart.

The following tissues were harvested from each animal and preserved in 10% neutral buffered formalin:

skin	colon
mandibular and	cecum
mesenteric lymph nodes	rectum
mammary glands	liver
thigh muscle	pancreas
sciatic nerve	spleen
sternum	kidneys
femur with marrow	adrenals
thymus	urinary bladder
trachea	seminal vesicles
lungs with bronchi	prostate
heart and aorta	testes, including epididymides
thyroid	ovaries
parathyroids	uterus
esophagus	nasal cavity with turbinates
stomach	brain
duodenum	pituitary
jejunum	preputial or clitoral glands
tongue	Zymbal's gland
salivary gland	spinal cord
ileum	

Subsequently, these tissues were trimmed, processed and embedded in paraffin. Blocks were sectioned at 5 $\mu$  and slides were prepared and stained with hematoxylin and eosin. All tissues were examined in the high dose and control groups of both sexes. The spleen, kidneys, lungs and liver were examined in the remaining groups.

Inflammatory and degenerative lesions were graded according to severity using a scale of one to four (minimal, mild, moderate or marked). Data were tabulated according to individual animal and summarized by group. In addition, the gross observations and microscopic diagnoses were correlated for each animal. Labcat histopathology software was used for data management.

## **RESULTS**

### **Food and Water Consumption**

Overall food and water consumption data are listed in Table 1. The food consumption data shows a significant decrease ( $p \leq 0.05$ ) in the 300 mg/kg group of both sexes as well as the 60 mg/kg male group. Water consumption was not significantly changed in females while the 300 mg/kg male group was marginally increased.

Using the food consumption data, the average daily dose levels of TNB received by group is presented in Table 2.

### **Body Weights, Organ Weights and Weight Ratios**

Organ weights (heart, brain, spleen, adrenals, thymus, ovaries/testes, kidneys, lungs and liver) are given in Tables 3 (females) and 4 (males). Mean group values for organ to body weight ratios are present in Tables 5 (females) and 6 (males).

A significant decrease ( $p \leq 0.05$ ) from control terminal body weight was noted in the 300 mg/kg female group.

Absolute organ weights were significantly ( $p \leq 0.05$ ) different from the controls for the following:

- Brain - The 5 and 60 mg/kg female groups were increased.
- Heart - The female 300 mg/kg group was decreased.
- Spleen - The 300 mg/kg group of both sexes was increased.
- Thymus - The 300 mg/kg female group was decreased.

Organ weights as a percent of the total body weight were significantly ( $p \leq 0.05$ ) different from controls for the following organs:

- Brain - The 60 and 300 mg/kg female groups were increased.
- Spleen - The 300 mg/kg groups of both sexes were increased.
- Liver - The 300 mg/kg groups of both sexes were increased.
- Kidneys - The 300 mg/kg male group was increased.

### **Hematology**

Hematology analyses performed were total white blood cell count (WBC), platelet count, red blood cell count (RBC), methemoglobin (MetHb), hemoglobin, hematocrit, reticulocytes, Heinz bodies, MCV, MCH, MCHC, and differential leukocyte count. Group data are summarized in Tables 7 and 8. There were no significant ( $p \leq 0.05$ ) changes between the control group and treated groups except for the following:

- 1) WBC and Differential: The total white blood cell count was elevated in the high dose group of both sexes.
- 2) RBC: A decrease in total red cell count in all male dose groups and the 300 mg/kg female group.
- 3) Hemoglobin: A decrease in the 300 mg/kg group of both sexes and the 60 mg/kg male group.
- 4) Hematocrit: A decrease in all male treated groups in addition to the 300 mg/kg female group.
- 5) Platelets: An increase in both sexes in the 300 mg/kg group.
- 6) Reticulocytes: An increase in reticulocytes in both sexes in the 300 mg/kg group and in the 60 mg/kg female group.
- 7) Methemoglobin: An increase in both sexes in the 300 mg/kg group and in the 60 mg/kg female group.

#### Clinical Chemistry

The following analytes were evaluated: glucose, blood urea nitrogen (BUN), creatinine, alkaline phosphatase (ALK phos), total protein, albumin, calcium, total bilirubin, aspartate aminotransferase (AST), alanine aminotransferase (ALT), sodium, potassium, phosphorus and triglycerides. The mean group values for each analyte are compiled in Tables 9 - 10. There were no significant ( $p \leq 0.05$ ) differences between the control group and treated groups except for the following:

- 1) Total Protein: The 300 mg/kg female group was decreased while the male 300 mg/kg group was increased.
- 2) Albumin: The 300 mg/kg male group was elevated.
- 3) Calcium: The 300 mg/kg male group was elevated.
- 4) Total Bilirubin: The 60 mg/kg female group was decreased.
- 5) Blood Urea Nitrogen: The 300 mg/kg group of both sexes was increased.
- 6) Potassium: The 300 mg/kg female group was increased.
- 7) Triglycerides: The 300 mg/kg male group was decreased.

#### Clinical Observations

There were no clinical observations that were treatment related.

### Survival

There were two early deaths recorded between the three month and six month sacrifice. Data is included in the two year sacrifice.

### Gross Pathology

There were no treatment related gross observations.

### Histopathology

All tissues were histopathologically examined in control and high dose animals of both sexes while the spleen, liver, lungs and kidneys were examined in the remainder of the groups.

The kidneys of male rats in the 60 and 300 mg/kg groups exhibited an increased incidence of cortical tubular hyaline droplet deposition. Chronic progressive nephropathy was present in all male groups with no treatment related severity difference. This diagnosis is comprised of a varying number of pathological changes which include: 1) tubular proteinaceous casts, 2) epithelial tubular lining cells ranging from flattened squamous cells to large basophilic cells, 3) thickened basement membranes involving tubules, capillaries and glomeruli, 4) cystic dilatation of Bowman's space with atrophic glomerular tufts, 5) interstitial lymphocytic infiltrates and fibrosis, 6) focal microconcretions 7) renal tubular cell hypertrophy and 8) tubular regeneration. Combinations of these changes were noted in all groups. These types of changes are considered spontaneous alterations of unknown etiology in male rats.

The spleen and bone marrow both featured minimal to mild erythroid cell hyperplasia with increased pigment (hemosiderin) deposition. This was evident in both sexes in the 60 and 300 mg/kg groups. This same compensatory change (regenerative anemia) can be noted in multiple organs but only the spleen was examined in all the animals.

The remaining diagnoses as listed in the tables should be considered spontaneous for F344 rats since their incidence or severity levels were low.

## **CONCLUSIONS**

Administration of 1,3,5-trinitrobenzene in the diet to Fischer 344 rats at various doses for six months resulted in the following biologically significant findings:

1. Spleen, brain and liver relative organ weights were increased in the female 300 mg/kg group while the spleen, liver and kidneys were increased in males in this same group.
2. Hemoglobin and red blood cell levels were decreased in both sexes administered 300 mg/kg diet and in males receiving 60 mg/kg while

methemoglobin was increased in the 300 mg/kg group of both sexes and the 60 mg/kg female group.

3. Erythroid cell hyperplasia was increased in the 60 and 300 mg/kg groups of both sexes.
4. Terminal body weights were reduced in the female 300 mg/kg group.
5. Food consumption was decreased in both sexes in the 300 mg/kg group and the male 60 mg/kg group while water consumption was increased in the 300 mg/kg male group.
6. Excessive hyaline droplet formation was present in cortical renal tubules in male rats in the 60 and 300 mg/kg groups.

Table 1: Food and Water Consumption

Dose Groups (mg TNB/kg diet)	Food (g/kg b.w./day)	Water
Females		
300	48.1 ± 0.4*	97.2 ± 3.6
60	53.4 ± 1.7	90.5 ± 1.4
5	52.3 ± 0.5	89.3 ± 1.4
0	56.4 ± 1.0	91.0 ± 2.3
Males		
300	52.5 ± 0.3*	85.6 ± 2.2*
60	53.2 ± 0.3*	79.9 ± 1.0
5	54.3 ± 0.4	74.7 ± 1.0
0	54.8 ± 0.5	76.3 ± 1.0

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Tukey's test.

Table 2: Daily Consumption of 1,3,5-Trinitrobenzene

Dose Groups (mg TNB/kg diet)	Calculated Dose (mg TNB/kg b.w.)	
	Females	Males
300	14.37 ± 0.13	15.69 ± 0.10
60	3.23 ± 0.10	3.22 ± 0.02
5	0.27 ± 0.00	0.28 ± 0.00
0	0.0 ± 0.0	0.0 ± 0.0

Mean ± Standard Error



Table 3: Organ Weights (grams) /Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Kidneys	1.33 ± 0.03	1.36 ± 0.03	1.38 ± 0.02	1.40 ± 0.03
Lungs	1.06 ± 0.04	1.07 ± 0.03	1.06 ± 0.03	1.17 ± 0.08
Liver	5.01± 0.11	5.05 ± 0.12	5.23 ± 0.09	5.26 ± 0.12
Heart	0.65 ± 0.02*	0.70 ± 0.02	0.73 ± 0.02	0.74 ± 0.03
Brain	1.73 ± 0.02	1.80 ± 0.01*	1.82 ± 0.01*	1.73 ± 0.01
Spleen	0.53 ± 0.01*	0.47 ± 0.01	0.47 ± 0.01	0.48 ± 0.01
Adrenals	0.06 ± 0.00	0.06 ± 0.00	0.07 ± 0.00	0.07 ± 0.01
Thymus	0.15 ± 0.01*	0.21± 0.01	0.20 ± 0.02	0.21 ± 0.01
Gonads	0.13 ± 0.01	0.14 ± 0.01	0.13 ± 0.01	0.18 ± 0.03

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 4: Organ Weights (grams)/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Kidneys	2.30 ± 0.04	2.37 ± 0.08	2.42 ± 0.04	2.34 ± 0.06
Lungs	1.62 ± 0.08	1.56 ± 0.07	1.63 ± 0.05	1.52 ± 0.07
Liver	9.99 ± 0.18	10.02 ± 0.36	9.98 ± 0.23	9.87 ± 0.27
Heart	1.07 ± 0.03	1.09 ± 0.02	1.12 ± 0.02	1.08 ± 0.03
Brain	1.92 ± 0.02	1.95 ± 0.02	1.96 ± 0.03	1.93 ± 0.02
Spleen	0.78 ± 0.02*	0.69 ± 0.02	0.73 ± 0.01	0.67 ± 0.02
Adrenals	0.07 ± 0.00	0.06 ± 0.00	0.07 ± 0.00	0.06 ± 0.00
Thymus	0.22 ± 0.02	0.24 ± 0.03	0.27 ± 0.03	0.24 ± 0.02
Gonads	5.79 ± 0.33	5.56 ± 0.36	5.76 ± 0.52	5.68 ± 0.40

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 5: Organ-to-Body Weight Ratios/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Body Weight (grams)	171.83 ± 1.99*	183.77 ± 3.17	191.87 ± 2.57	189.86 ± 2.44
Kidneys (%)	0.77 ± 0.01	0.74 ± 0.01	0.72 ± 0.01	0.74 ± 0.01
Lungs (%)	0.61 ± 0.02	0.58 ± 0.01	0.56 ± 0.02	0.62 ± 0.05
Liver (%)	2.91 ± 0.05*	2.75 ± 0.03	2.73 ± 0.03	2.77 ± 0.04
Heart (%)	0.38 ± 0.01	0.38 ± 0.01	0.38 ± 0.01	0.39 ± 0.01
Brain (%)	1.01 ± 0.01*	0.98 ± 0.02*	0.95 ± 0.01	0.91 ± 0.01
Spleen (%)	0.31 ± 0.01*	0.26 ± 0.01	0.25 ± 0.01	0.25 ± 0.00
Adrenals (%)	0.04 ± 0.00	0.03 ± 0.00	0.03 ± 0.00	0.04 ± 0.00
Thymus (%)	0.09 ± 0.01	0.11 ± 0.01	0.10 ± 0.01	0.11 ± 0.01
Gonads (%)	0.08 ± 0.00	0.08 ± 0.00	0.07 ± 0.00	0.10 ± 0.01

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 6: Organ-to-Body Weight Ratios/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Body Weight (grams)	327.23 ± 5.20	344.40 ± 8.82	358.28 ± 5.31	346.71 ± 8.24
Kidneys (%)	0.70 ± 0.01 *	0.69 ± 0.01	0.68 ± 0.01	0.67 ± 0.01
Lungs (%)	0.49 ± 0.02	0.45 ± 0.02	0.46 ± 0.02	0.44 ± 0.02
Liver (%)	3.05 ± 0.04 *	2.90 ± 0.04	2.78 ± 0.04	2.85 ± 0.04
Heart (%)	0.33 ± 0.01	0.32 ± 0.01	0.31 ± 0.01	0.31 ± 0.01
Brain (%)	0.59 ± 0.01	0.57 ± 0.01	0.55 ± 0.01	0.56 ± 0.01
Spleen (%)	0.24 ± 0.00 *	0.20 ± 0.00	0.20 ± 0.00	0.19 ± 0.00
Adrenals (%)	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00
Thymus (%)	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01
Gonads (%)	1.77 ± 0.10	1.62 ± 0.10	1.61 ± 0.15	1.64 ± 0.11

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 7: Hematology Values/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
RBC ( $\times 10^6/\mu\text{l}$ )	7.71 * $\pm 0.29$	7.95 $\pm 0.26$	8.02 $\pm 0.23$	8.26 $\pm 0.37$
Hemoglobin (g/dl)	14.38 * $\pm 0.61$	15.20 $\pm 0.49$	15.54 $\pm 0.46$	15.71 $\pm 0.59$
Hematocrit (%)	40.25 * $\pm 1.19$	42.05 $\pm 1.29$	42.75 $\pm 1.42$	43.80 $\pm 2.72$
WBC ( $\times 10^3/\mu\text{l}$ )	4.14 * $\pm 0.69$	3.53 $\pm 0.53$	3.27 $\pm 0.52$	3.39 $\pm 0.56$
Platelets ( $\times 10^3/\mu\text{l}$ )	788.89 * $\pm 47.86$	689.20 $\pm 68.05$	649.50 $\pm 62.05$	671.50 $\pm 56.07$
Segmented Leukocytes (%)	22.34 $\pm 6.22$	20.16 $\pm 5.75$	20.24 $\pm 3.94$	19.90 $\pm 2.29$
Lymphocytes (%)	73.22 $\pm 6.57$	75.61 $\pm 6.19$	75.15 $\pm 4.61$	75.53 $\pm 2.19$
Heinz Bodies (%)	0.38 $\pm 0.95$	0.0 $\pm 0.00$	0.02 $\pm 0.06$	0.0 $\pm 0.00$
MCV (CUMICR)	52.24 $\pm 0.64$	52.88 $\pm 0.50$	53.30 $\pm 0.46$	53.01 $\pm 1.16$
MCH (PICOgm)	18.66 $\pm 0.30$	19.12 $\pm 0.40$	19.36 $\pm 0.46$	19.04 $\pm 0.54$
MCHC (g/dl)	35.72 $\pm 0.56$	36.11 $\pm 0.75$	36.33 $\pm 0.86$	35.94 $\pm 1.20$
Retic (%)	3.03 * $\pm 0.41$	2.13 * $\pm 0.34$	1.95 $\pm 0.27$	1.78 $\pm 0.18$
MetHb (%)	2.27 * $\pm 0.47$	1.19 * $\pm 0.34$	0.92 $\pm 0.35$	0.57 $\pm 0.41$

Mean  $\pm$  Standard Deviation\* Significantly different from the control group ( $P \leq 0.05$ ) by the Dunnett's Test.

Table 8: Hematology Values/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
RBC ( $\times 10^6/\mu\text{l}$ )	8.60 * $\pm 0.17$	8.84 * $\pm 0.19$	8.79 * $\pm 0.23$	9.11 $\pm 0.28$
Hemoglobin (g/dl)	14.41 * $\pm 0.34$	14.98 * $\pm 0.53$	15.22 $\pm 0.37$	15.54 $\pm 0.25$
Hematocrit (%)	42.11 * $\pm 0.83$	43.20 * $\pm 1.02$	43.41 * $\pm 0.90$	44.75 $\pm 1.01$
WBC ( $\times 10^3/\mu\text{l}$ )	5.65 * $\pm 0.60$	4.73 $\pm 0.80$	4.36 $\pm 0.41$	4.39 $\pm 0.75$
Platelets ( $\times 10^3/\mu\text{l}$ )	763.40 * $\pm 27.63$	669.30 $\pm 72.22$	666.90 $\pm 48.34$	668.44 $\pm 44.22$
Segmented Leukocytes (%)	24.31 $\pm 4.48$	25.51 $\pm 3.02$	27.27 $\pm 3.84$	26.74 $\pm 3.39$
Lymphocytes (%)	71.79 $\pm 4.83$	70.00 $\pm 3.13$	68.19 $\pm 3.74$	68.70 $\pm 3.90$
Heinz Bodies (%)	0.16 $\pm 0.51$	0.0 $\pm 0.00$	0.0 $\pm 0.00$	0.0 $\pm 0.00$
MCV (CUMICR)	48.95 $\pm 0.53$	48.91 $\pm 0.85$	49.39 $\pm 0.54$	49.13 $\pm 0.82$
MCH (PICOGM)	16.75 $\pm 0.23$	16.95 $\pm 0.46$	17.30 $\pm 0.44$	17.08 $\pm 0.46$
MCHC (g/dl)	34.23 $\pm 0.42$	34.65 $\pm 0.72$	35.00 $\pm 0.56$	34.77 $\pm 0.59$
Retic (%)	2.68 * $\pm 0.28$	2.04 $\pm 0.14$	2.01 $\pm 0.15$	1.89 $\pm 0.30$
MetHb (%)	2.96 * $\pm 0.76$	1.10 0.42	0.84 $\pm 0.37$	0.89 $\pm 0.36$

Mean  $\pm$  Standard Deviation\* Significantly different from the control group ( $P \leq 0.05$ ) by the Dunnett's Test.

Table 9: Clinical Chemistry Values/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Glucose (mg/dl)	140.20 ± 14.15	138.10 ± 10.89	136.40 ± 9.24	136.70 ± 14.55
BUN (mg/dl)	20.70 ± 2.58*	18.60 ± 1.78	18.60 ± 2.59	17.60 ± 2.50
Creatinine (mg/dl)	0.54 ± 0.05	0.53 ± 0.05	0.57 ± 0.05	0.54 ± 0.05
Alk phos (IU/L)	71.30 ± 12.28	65.30 ± 11.54	65.90 ± 13.69	68.70 ± 11.86
AST (IU/L)	125.10 ± 15.86	136.30 ± 67.15	138.50 ± 67.58	125.60 ± 41.83
ALT (IU/L)	67.20 ± 10.98	77.90 ± 45.18	87.00 ± 49.17	67.40 ± 24.31
Potassium (mEq/L)	4.64 ± 0.28*	4.39 ± 0.26	4.37 ± 0.36	4.45 ± 0.67
Albumin (g/dl)	4.44 ± 0.20	4.51 ± 0.14	4.51 ± 0.17	4.51 ± 0.16
Calcium (mg/dl)	10.30 ± 0.22	10.26 ± 0.15	10.29 ± 0.27	10.22 ± 0.31
Phosphorus (mg/dl)	6.85 ± 0.45	6.82 ± 0.70	6.87 ± 0.43	6.84 ± 1.04
Triglycerides (mg/dl)	26.60 ± 9.89	33.70 ± 7.01	45.00 ± 13.66	38.40 ± 12.08
Sodium (mEq/L)	141.80 ± 0.79	141.70 ± 0.95	141.60 ± 0.84	141.40 ± 1.07
Total Bilirubin (mg/dl)	0.14 ± 0.05	0.10 ± 0.00*	0.13 ± 0.05	0.16 ± 0.05
Total Protein (g/dl)	6.22 ± 0.24*	6.47 ± 0.11	6.38 ± 0.27	6.46 ± 0.24

Mean ± Standard Deviation

\* Significantly different from controls;  $p \leq 0.05$  by Dunnett's test.

Table 10: Clinical Chemistry Values/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Glucose (mg/dl)	180.30 ± 21.57	189.90 ± 21.09	179.70 ± 21.43	191.30 ± 16.51
BUN (mg/dl)	19.50 ± 0.97*	18.60 ± 1.58	18.60 ± 1.17	17.90 ± 1.66
Creatinine (mg/dl)	0.60 ± 0.00	0.59 ± 0.03	0.56 ± 0.05*	0.60 ± 0.00
Alk phos (IU/L)	85.90 ± 14.73	87.30 ± 12.16	92.70 ± 6.27	93.60 ± 11.08
AST (IU/L)	158.40 ± 43.32	153.60 ± 57.33	159.80 ± 61.66	157.00 ± 45.39
ALT (IU/L)	76.80 ± 23.26	95.30 ± 47.88	106.20 ± 62.30	97.70 ± 31.18
Potassium (mEq/L)	4.86 ± 0.25	4.67 ± 0.25	4.88 ± 0.39	4.78 ± 0.37
Albumin (g/dl)	4.78 ± 0.12*	4.58 ± 0.18	4.46 ± 0.12	4.53 ± 0.14
Calcium (mg/dl)	10.63 ± 0.18*	10.38 ± 0.18	10.43 ± 0.18	10.32 ± 0.23
Phosphorus (mg/dl)	7.75 ± 0.36	7.71 ± 0.28	7.87 ± 0.31	7.56 ± 0.55
Triglycerides (mg/dl)	65.40 ± 17.86*	73.20 ± 20.66	80.80 ± 20.25	92.30 ± 32.96
Sodium (mEq/L)	141.50 ± 1.18	141.30 ± 0.82	142.00 ± 0.00	141.70 ± 1.06
Total Bilirubin (mg/dl)	0.14 ± 0.05	0.11 ± 0.03	0.11 ± 0.03	0.11 ± 0.03
Total Protein (g/dl)	7.06 ± 0.23*	6.81 ± 0.26	6.62 ± 0.19	6.78 ± 0.22

Mean ± Standard Deviation

\* Significantly different from controls;  $p \leq 0.05$  by Dunnett's test.



CLINICAL CHEMISTRY  
AND  
HEMATOLOGY DATA

# Hematology Data/Females

DOSE GROUPS	ANIMALS	METHB	WBC	RBC	HGB	HCT	MCV
(mg TNB/kg) diet	#	%	thsn/ cu mm	mill/ cu mm	g/dl	%	cumicr
300	11	2.7	4.5	7.91	14.9	41.1	52.0
	12	2.2	4.5	8.02	14.7	41.4	51.6
	13	1.5	5.7	7.66	14.6	40.0	52.2
	14	2.2	3.5	8.13	15.3	41.6	51.1
	15	2.4	3.7	7.14	13.3	37.8	53.0
	16	2.6	3.8	7.91	14.8	41.4	52.3
	17	2.1	3.4	7.65	14.3	40.3	52.7
	18	2.7	4.0	7.57	13.6	39.2	51.8
	19	1.5	3.8	7.62	14.2	40.0	52.5
	20	2.8	4.5	7.45	14.1	39.7	53.2
60	86	1.9	3.9	7.88	15.3	41.9	53.2
	87	1.2	4.5	8.11	15.8	42.4	52.3
	88	1.2	3.3	8.13	15.3	42.9	52.7
	89	0.8	3.7	7.60	14.1	40.4	53.1
	90	1.2	3.6	8.45	15.6	44.3	52.4
	91	0.9	2.8	7.80	14.9	41.0	52.6
	92	1.3	3.6	7.93	15.4	41.8	52.7
	93	0.7	3.4	8.13	15.6	43.7	53.8
	94	1.4	2.7	7.90	15.0	41.5	52.5
	95	1.3	3.8	7.60	15.0	40.6	53.5
5	161	0.7	3.7	8.14	15.9	43.1	53.0
	162	0.9	2.6	7.72	15.1	40.8	52.8
	163	1.2	3.3	7.79	15.7	41.3	53.0
	164	1.3	2.9	8.31	16.4	45.1	54.3
	165	0.7	2.9	8.24	15.7	44.2	53.6
	166	0.8	3.5	8.05	15.0	42.5	52.8
	167	0.4	3.6	7.74	15.0	41.5	53.6
	168	1.1	3.6	8.25	15.4	43.8	53.1
	169	1.5	4.1	8.14	15.9	43.5	53.5
	170	0.6	2.5	7.83	15.3	41.7	53.3
0	236	1.0	3.1	8.30	15.1	43.4	52.3
	237	0.1	3.7	8.00	16.0	42.3	52.9
	238	1.1	3.4	7.95	15.0	41.1	51.8
	239	1.0	3.0	7.85	15.1	41.8	53.3
	240	0.4	2.6	7.96	15.7	42.5	53.4
	241	0.1	4.6	9.06	17.0	50.7	56.0
	242	0.3	3.0	8.49	16.1	44.9	52.9
	243	0.4	3.9	8.30	15.6	43.9	52.8
	244	0.3	3.2	8.58	15.8	44.8	52.2
	245	1.0	3.4	8.13	15.7	42.6	52.5

# Hematology Data/Females

DOSE GROUPS	ANIMAL	MCH	MCHC	PLAT	NEUTRO- PHILS	LYMPHO- CYTES	RET	HEINZ
(mg TNB/kg)								
diet	#	picogm	g/dl	thsn/ cu mm	%	%	%	%
300	11	18.8	36.2	744	15.5	79.8	2.8	0.8
	12	18.3	35.5	707	16.5	79.3	3.1	0.0
	13	19.0	36.4	878	26.9	69.4	2.8	0.0
	14	18.8	36.7	817	33.7	60.4	2.9	3.0
	15	18.7	35.3	800	25.2	70.3	2.6	0.0
	16	18.7	35.7	795	21.3	74.8	3.1	0.0
	17	18.7	35.5	795	29.1	66.2	3.1	0.0
	18	18.0	34.8	*	15.9	79.4	2.9	0.0
	19	18.7	35.6	765	17.8	78.7	2.9	0.0
	20	18.9	35.5	799	21.5	73.9	4.1	0.0
60	86	19.4	36.4	698	26.0	68.9	1.8	0.0
	87	19.5	37.2	724	20.6	75.1	1.7	0.0
	88	18.8	35.6	776	16.7	79.2	2.0	0.0
	89	18.6	34.9	711	16.0	80.8	2.9	0.0
	90	18.5	35.3	755	32.2	63.6	2.1	0.0
	91	19.1	36.3	617	17.8	77.0	2.4	0.0
	92	19.4	36.9	703	18.3	77.8	2.0	0.0
	93	19.2	35.6	539	14.3	82.7	2.0	0.0
	94	19.0	36.1	689	24.6	70.1	2.1	0.0
	95	19.7	36.8	680	15.1	80.9	2.3	0.0
5	161	19.5	36.8	540	18.0	78.3	1.8	0.0
	162	19.6	37.0	541	16.5	80.2	2.3	0.2
	163	20.1	38.0	687	18.4	76.3	2.0	0.0
	164	19.7	36.3	716	22.2	70.9	2.3	0.0
	165	19.0	35.5	698	23.8	70.6	2.0	0.0
	166	18.6	35.3	685	27.3	67.7	2.1	0.0
	167	19.4	36.1	648	21.9	74.4	1.7	0.0
	168	18.7	35.2	654	13.6	82.6	1.7	0.0
	169	19.5	36.5	686	21.8	73.8	1.5	0.0
	170	19.5	36.6	640	18.9	76.7	2.1	0.0
0	236	18.2	34.9	602	21.4	73.4	1.9	0.0
	237	20.0	37.9	744	16.7	78.8	2.0	0.0
	238	18.8	36.3	762	19.2	76.3	1.6	0.0
	239	19.3	36.1	664	21.6	73.6	1.6	0.0
	240	19.7	37.0	699	20.7	74.5	2.0	0.0
	241	18.8	33.6	649	16.0	78.9	1.7	0.0
	242	19.0	35.9	680	19.4	76.0	1.6	0.0
	243	18.8	35.5	642	19.9	76.4	1.9	0.0
	244	18.5	35.4	585	23.8	72.4	1.9	0.0
	245	19.3	36.8	688	20.3	75.0	1.6	0.0

\*clumped

# Hematology Data/Males

DOSE							
GROUPS	ANIMALS	METHB	WBC	RBC	HGB	HCT	MCV
(mg TNB/kg)			thsn/	mill/			
diet	#	%	cu mm	cu mm	g/dl	%	cumicr
300	296	3.8	6.0	8.53	14.2	42.6	49.9
	297	2.6	5.1	8.56	14.1	41.6	48.6
	298	4.2	6.4	8.47	14.7	42.3	49.9
	299	2.3	5.6	8.48	14.2	41.2	48.6
	300	2.5	6.6	8.43	14.1	40.9	48.5
	301	2.1	5.8	9.00	15.1	43.7	48.5
	302	2.7	5.6	8.54	14.2	41.7	48.8
	303	3.2	5.2	8.80	14.7	42.9	48.8
	304	2.3	4.6	8.65	14.6	42.3	48.9
	305	3.9	5.6	8.56	14.2	41.9	49.0
60	371	1.6	4.2	8.73	15.0	42.2	48.4
	372	1.2	5.6	8.99	15.3	43.3	48.2
	373	1.6	6.1	8.92	15.0	44.0	49.4
	374	0.8	5.1	8.45	14.7	42.1	50.2
	375	1.0	5.3	8.84	15.5	44.0	49.8
	376	1.0	3.5	8.96	15.1	43.7	48.7
	377	1.5	4.8	8.97	15.1	43.1	48.0
	378	0.3	4.0	8.92	15.2	44.5	49.9
	379	0.7	4.4	9.02	15.3	43.8	48.6
	380	1.3	4.3	8.62	13.6	41.3	47.9
5	446	0.7	3.8	8.96	15.6	44.2	49.3
	447	0.9	4.1	8.77	15.1	43.6	49.7
	448	0.9	5.0	9.11	15.2	44.4	48.7
	449	0.7	5.0	8.72	15.7	43.7	50.2
	450	0.1	4.1	8.73	15.4	43.7	50.0
	451	0.6	4.4	8.91	15.7	43.9	49.3
	452	1.3	3.9	8.69	15.0	42.8	49.3
	453	0.8	4.4	8.59	14.7	42.4	49.4
	454	1.0	4.6	9.08	15.1	43.9	48.4
	455	1.4	4.3	8.38	14.7	41.5	49.6
0	521	0.7	4.8	9.03	15.3	44.3	49.1
	522	0.3	4.3	9.59	15.6	46.2	48.2
	523	0.7	4.0	9.24	15.6	45.4	49.1
	524	0.5	3.9	9.34	15.5	45.8	49.0
	525	1.0	6.3	9.15	15.9	44.8	49.0
	526	0.8	4.4	8.82	15.4	44.3	50.2
	527	1.0	4.0	8.75	15.0	42.5	48.6
	528	1.1	3.7	9.32	15.7	44.9	48.2
	529	1.3	3.9	9.14	15.7	44.9	49.1
	530	1.5	4.6	8.73	15.7	44.4	50.8

# Hematology Data/Males

DOSE		NEUTRO- LYMPHO-						
GROUPS	ANIMAL	MCH	MCHC	PLAT	PHILS	CYTES	RET	HEINZ
(mg TNB/kg)				thsn/				
diet	#	picogm	g/dl	cu mm	%	%	%	%
300	296	16.6	33.3	784	19.0	77.7	2.9	1.6
	297	16.5	34.0	746	20.7	75.8	2.6	0.0
	298	17.3	34.7	738	19.1	77.3	2.9	0.0
	299	16.7	34.3	780	24.3	71.8	2.9	0.0
	300	16.8	34.6	791	23.9	72.2	2.8	0.0
	301	16.8	34.6	751	24.8	71.9	2.8	0.0
	302	16.6	34.0	714	34.4	61.2	2.0	0.0
	303	16.7	34.3	767	24.8	70.6	2.6	0.0
	304	16.9	34.5	757	27.4	68.0	2.5	0.0
	305	16.6	34.0	806	24.7	71.4	2.8	0.0
60	371	17.2	35.5	678	28.6	66.2	2.1	0.0
	372	17.0	35.3	669	29.0	66.7	2.0	0.0
	373	16.9	34.2	652	27.4	67.6	2.0	0.0
	374	17.4	34.7	675	20.4	75.5	2.2	0.0
	375	17.5	35.1	481	26.6	70.5	1.8	0.0
	376	16.8	34.5	691	26.2	69.9	2.1	0.0
	377	16.9	35.1	759	23.7	71.3	1.9	0.0
	378	17.0	34.0	712	21.1	73.8	2.2	0.0
	379	17.0	35.0	692	27.7	67.1	1.9	0.0
	380	15.8	33.1	684	24.4	71.4	2.2	0.0
5	446	17.5	35.4	600	32.9	62.6	1.9	0.0
	447	17.3	34.7	570	24.4	70.3	1.9	0.0
	448	16.6	34.2	700	23.3	73.0	1.8	0.0
	449	18.0	35.8	655	28.7	66.3	2.3	0.0
	450	17.6	35.1	700	33.4	62.3	2.2	0.0
	451	17.6	35.7	691	22.8	72.0	2.0	0.0
	452	17.2	34.9	689	23.9	71.1	2.1	0.0
	453	17.1	34.6	712	29.6	66.6	2.0	0.0
	454	16.6	34.3	704	27.3	67.7	2.0	0.0
	455	17.5	35.3	648	26.4	70.0	1.9	0.0
0	521	17.0	34.6	664	24.8	70.8	1.8	0.0
	522	16.3	33.8	630	32.4	61.6	2.0	0.0
	523	16.9	34.5	762	24.8	70.7	1.9	0.0
	524	16.6	33.9	695	29.6	64.3	2.4	0.0
	525	17.4	35.6	648	26.8	68.5	1.4	0.0
	526	17.5	34.8	*	26.4	69.9	2.1	0.0
	527	17.2	35.3	665	30.7	65.4	1.8	0.0
	528	16.9	35.0	695	27.3	68.8	2.2	0.0
	529	17.1	34.9	642	22.2	73.1	1.7	0.0
	530	17.9	35.3	615	22.4	73.9	1.6	0.0

\*clumped

# Clinical Chemistries/Females

DOSE GROUPS (mg TNB/kg)	ANIMALS	GLUCOSE	BUN	CREAT	SODIUM	POTASSIUM
diet	#	mg/dl	mg/dl	mg/dl	mmol/l	mmol/l
300	11	139	18	0.5	143	4.5
	12	150	19	0.6	143	4.6
	13	145	21	0.6	142	4.2
	14	108	22	0.5	141	4.8
	15	142	23	0.6	141	4.8
	16	155	26	0.6	141	4.7
	17	131	21	0.5	142	4.4
	18	131	21	0.5	142	4.8
	19	155	18	0.5	141	5.2
	20	146	18	0.5	142	4.4
60	86	125	17	0.6	141	4.5
	87	142	18	0.5	141	4.1
	88	147	16	0.5	141	4.5
	89	130	20	0.6	142	4.7
	90	159	20	0.5	143	4.3
	91	150	19	0.5	141	4.1
	92	132	19	0.6	143	4.3
	93	130	21	0.5	143	4.9
	94	134	16	0.5	141	4.3
	95	132	20	0.5	141	4.2
5	161	139	15	0.6	142	4.2
	162	146	16	0.6	140	4.0
	163	118	19	0.6	142	4.2
	164	148	24	0.6	141	4.4
	165	138	18	0.5	142	5.3
	166	136	21	0.6	142	4.4
	167	142	18	0.5	141	4.3
	168	141	20	0.5	143	4.5
	169	128	18	0.6	141	4.1
	170	128	17	0.6	142	4.3
0	236	130	16	0.5	140	4.0
	237	127	19	0.5	141	4.1
	238	117	16	0.5	141	4.3
	239	130	17	0.5	142	4.3
	240	148	19	0.5	142	4.5
	241	163	21	0.6	141	6.3
	242	136	15	0.6	143	4.5
	243	135	22	0.6	143	4.2
	244	156	15	0.6	141	4.1
	245	125	16	0.5	140	4.2

# Clinical Chemistries/Females

DOSE							TOTAL	TOTAL		
GROUPS	ANIMAL	AST	ALT	PHOS	A P	CA	BILIRUBIN	PROTEIN	ALB	TRIG
(mg TNB/kg)										
diet	#	U/L	U/L	mg/dl	U/L	mg/dl	mg/dl	g/dl	g/dl	mg/dl
300	11	123	64	7.3	67	10.2	0.1	6.1	4.4	24
	12	125	66	7.6	63	10.2	0.1	6.2	4.5	18
	13	110	66	7.0	62	10.6	0.1	6.3	4.5	43
	14	128	60	6.1	75	10.3	0.2	6.1	4.5	28
	15	157	87	6.8	63	10.6	0.2	6.1	4.3	43
	16	144	83	6.6	94	10.5	0.2	6.8	4.9	33
	17	118	65	6.5	80	10.1	0.1	6.3	4.2	20
	18	115	68	6.5	87	9.9	0.2	5.9	4.3	19
	19	128	65	7.2	56	10.3	0.1	6.1	4.3	18
	20	103	48	6.9	66	10.3	0.1	6.3	4.5	20
60	86	121	53	7.8	77	10.2	0.1	6.6	4.4	34
	87	120	77	6.8	83	10.2	0.1	6.5	4.5	38
	88	93	48	6.2	45	10.6	0.1	6.5	4.7	28
	89	94	51	6.7	70	10.3	0.1	6.6	4.5	28
	90	133	68	7.2	70	10.0	0.1	6.3	4.4	28
	91	104	65	6.0	57	10.3	0.1	6.5	4.6	41
	92	125	80	6.5	67	10.2	0.1	6.3	4.3	42
	93	320	201	8.0	57	10.3	0.1	6.5	4.6	32
	94	101	52	6.0	55	10.2	0.1	6.4	4.4	23
	95	152	84	7.0	72	10.3	0.1	6.5	4.7	43
5	161	305	210	7.1	45	10.2	0.2	6.6	4.6	38
	162	186	131	7.3	49	9.9	0.1	5.9	4.3	29
	163	107	48	7.0	71	10.4	0.1	6.3	4.4	47
	164	91	57	6.3	78	10.7	0.1	6.8	4.8	74
	165	103	75	6.7	82	10.0	0.1	6.2	4.3	43
	166	156	81	6.8	59	10.3	0.2	6.3	4.5	46
	167	86	60	7.0	78	10.1	0.1	6.2	4.4	33
	168	106	67	7.3	79	10.7	0.1	6.7	4.7	59
	169	154	85	7.2	53	10.4	0.2	6.4	4.5	49
	170	91	56	6.0	65	10.2	0.1	6.4	4.6	32
0	236	218	100	7.1	61	10.3	0.2	6.7	4.5	32
	237	104	51	6.0	81	10.0	0.2	6.7	4.7	56
	238	96	45	5.7	61	10.1	0.2	6.3	4.4	33
	239	103	56	7.0	81	10.1	0.2	6.2	4.4	38
	240	105	64	6.1	71	10.2	0.1	6.5	4.6	34
	241	153	118	9.4	90	11.0	0.1	6.8	4.8	64
	242	85	51	7.3	61	10.0	0.1	6.1	4.4	28
	243	113	65	6.9	62	10.3	0.1	6.6	4.6	38
	244	171	77	6.3	52	9.9	0.2	6.4	4.3	34
	245	108	47	6.6	67	10.3	0.2	6.3	4.4	27

# Clinical Chemistries/Males

DOSE GROUPS	ANIMALS	GLUCOSE	BUN	CREAT	SODIUM	POTASSIUM
(mg TNB/kg)						
diet	#	mg/dl	mg/dl	mg/dl	mmol/l	mmol/l
300	296	182	19	0.6	142	4.8
	297	191	19	0.6	139	4.5
	298	187	18	0.6	140	5.1
	299	170	19	0.6	141	4.5
	300	154	19	0.6	142	4.9
	301	181	19	0.6	142	5.3
	302	169	20	0.6	142	4.9
	303	165	20	0.6	143	4.8
	304	233	21	0.6	142	5.0
	305	171	21	0.6	142	4.8
60	371	154	20	0.6	141	4.3
	372	214	18	0.6	141	4.5
	373	182	21	0.6	142	5.0
	374	211	20	0.6	141	4.5
	375	211	19	0.6	142	5.0
	376	188	17	0.6	142	4.9
	377	183	17	0.6	140	4.8
	378	207	20	0.6	142	4.5
	379	188	17	0.6	142	4.5
	380	161	17	0.5	140	4.7
5	446	150	20	0.6	142	4.4
	447	173	19	0.6	142	5.2
	448	183	18	0.6	142	4.3
	449	201	17	0.6	142	5.2
	450	140	20	0.5	142	5.5
	451	186	19	0.6	142	5.2
	452	188	20	0.6	142	4.8
	453	207	18	0.5	142	4.8
	454	196	17	0.5	142	4.8
	455	173	18	0.5	142	4.6
0	521	203	16	0.6	141	4.9
	522	205	21	0.6	144	4.7
	523	171	16	0.6	143	5.0
	524	208	18	0.6	141	5.5
	525	196	19	0.6	142	4.4
	526	159	18	0.6	142	4.2
	527	205	17	0.6	141	4.9
	528	198	17	0.6	141	4.5
	529	188	20	0.6	141	5.0
	530	180	17	0.6	141	4.7



# Clinical Chemistries/Males

DOSE GROUPS	ANIMALS	AST	ALT	PHOS	A P	CA	TOTAL BILIRUBIN	TOTAL PROTEIN	ALB	TRIG
(mg TNB/kg)										
diet	#	U/L	U/L	mg/dl	U/L	mg/dl	mg/dl	g/dl	g/dl	mg/dl
300	296	138	60	8.1	76	10.9	0.1	7.0	4.8	95
	297	262	134	7.1	68	10.7	0.1	7.1	4.7	89
	298	100	52	7.8	83	10.5	0.1	6.9	4.9	55
	299	157	75	7.4	81	10.6	0.2	7.2	4.7	76
	300	156	70	7.7	83	10.3	0.1	6.6	4.5	43
	301	184	95	8.1	72	10.7	0.2	6.9	4.8	45
	302	143	69	7.9	102	10.5	0.2	7.1	4.8	58
	303	147	78	7.8	107	10.8	0.1	7.1	4.8	59
	304	125	61	8.2	78	10.8	0.1	7.4	4.9	57
	305	172	74	7.4	109	10.5	0.2	7.3	4.9	77
60	371	159	84	7.8	92	10.6	0.1	7.0	4.7	80
	372	160	113	7.1	85	10.1	0.2	6.5	4.4	75
	373	160	87	7.8	113	10.2	0.1	7.1	4.6	103
	374	119	72	7.5	85	10.2	0.1	6.3	4.4	41
	375	304	225	7.7	98	10.4	0.1	7.1	5.0	90
	376	125	67	7.8	72	10.6	0.1	6.7	4.5	56
	377	118	76	7.6	72	10.6	0.1	6.9	4.6	74
	378	142	87	7.9	88	10.4	0.1	6.8	4.5	78
	379	95	58	7.7	80	10.4	0.1	7.0	4.6	43
	380	154	84	8.2	88	10.3	0.1	6.7	4.5	92
5	446	134	75	7.8	101	10.6	0.1	6.6	4.5	72
	447	167	117	8.3	96	10.2	0.1	6.3	4.3	65
	448	164	105	7.3	97	10.1	0.1	6.7	4.5	91
	449	156	95	7.9	96	10.4	0.1	6.7	4.6	112
	450	114	66	8.0	97	10.6	0.2	7.0	4.6	56
	451	109	79	7.7	89	10.6	0.1	6.8	4.5	67
	452	154	93	7.5	87	10.5	0.1	6.5	4.5	79
	453	177	91	8.1	80	10.4	0.1	6.5	4.3	74
	454	319	277	7.9	95	10.6	0.1	6.6	4.5	74
	455	104	64	8.2	89	10.3	0.1	6.5	4.3	118
0	521	142	98	7.1	85	10.4	0.1	6.7	4.3	67
	522	191	118	7.4	101	10.7	0.1	7.1	4.7	102
	523	159	87	8.1	82	10.1	0.1	6.6	4.4	38
	524	220	151	8.7	109	10.6	0.2	7.2	4.6	135
	525	164	92	7.1	108	10.0	0.1	6.8	4.7	105
	526	117	72	7.6	93	10.1	0.1	6.7	4.4	90
	527	232	146	7.6	81	10.2	0.1	6.6	4.5	88
	528	118	77	7.1	80	10.4	0.1	6.5	4.5	52
	529	131	77	7.9	100	10.3	0.1	6.8	4.5	106
	530	96	59	7.0	97	10.4	0.1	6.8	4.7	140

BODY AND ORGAN  
WEIGHTS

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
1	11	167.89	1.291	0.914	4.803	0.769	0.544	2.861
1	12	167.15	1.355	0.978	5.074	0.811	0.585	3.036
1	13	169.80	1.346	1.099	5.113	0.793	0.647	3.011
1	14	175.56	1.445	1.189	4.770	0.823	0.677	2.717
1	15	168.39	1.219	0.966	5.214	0.724	0.574	3.096
1	16	178.60	1.434	1.210	5.402	0.803	0.677	3.025
1	17	171.22	1.253	1.181	4.836	0.732	0.690	2.824
1	18	162.72	1.139	0.925	4.284	0.700	0.568	2.633
1	19	172.46	1.375	1.040	5.059	0.797	0.603	2.933
1	20	184.50	1.434	1.070	5.497	0.777	0.580	2.979
2	86	179.56	1.414	1.194	5.116	0.787	0.665	2.849
2	87	170.78	1.327	1.026	4.642	0.777	0.601	2.718
2	88	198.25	1.552	1.167	5.774	0.783	0.589	2.912
2	89	177.89	1.250	0.953	4.843	0.703	0.536	2.722
2	90	175.84	1.296	1.131	4.695	0.737	0.643	2.670
2	91	202.35	1.501	1.114	5.519	0.742	0.551	2.727
2	92	186.07	1.357	1.062	4.852	0.729	0.571	2.608
2	93	178.27	1.231	1.001	4.843	0.691	0.562	2.717
2	94	180.60	1.337	0.933	5.008	0.740	0.517	2.773
2	95	188.06	1.363	1.069	5.237	0.725	0.568	2.785
3	161	201.58	1.414	1.079	5.534	0.701	0.535	2.745
3	162	202.19	1.360	1.075	5.603	0.673	0.532	2.771
3	163	196.35	1.317	0.973	4.993	0.671	0.496	2.543
3	164	201.56	1.397	0.996	5.640	0.693	0.494	2.798
3	165	186.69	1.410	1.227	4.894	0.755	0.657	2.621
3	166	186.44	1.381	0.918	5.177	0.741	0.492	2.777
3	167	181.05	1.343	0.980	5.051	0.742	0.541	2.790
3	168	185.08	1.372	1.221	5.161	0.741	0.660	2.789
3	169	193.52	1.295	1.075	5.297	0.669	0.555	2.737
3	170	184.26	1.489	1.090	4.948	0.808	0.592	2.685
4	236	198.30	1.450	1.196	5.802	0.731	0.603	2.926
4	237	195.72	1.466	1.255	5.337	0.749	0.641	2.727
4	238	186.48	1.358	1.069	4.856	0.728	0.573	2.604
4	239	184.86	1.376	1.073	4.923	0.744	0.580	2.663
4	240	199.52	1.480	1.048	5.446	0.742	0.525	2.730
4	241	183.88	1.349	1.871	5.038	0.734	1.018	2.740
4	242	186.43	1.367	0.958	5.461	0.733	0.514	2.929
4	243	184.24	1.306	1.111	5.090	0.709	0.603	2.763
4	244	200.07	1.583	1.207	5.825	0.791	0.603	2.911
4	245	179.12	1.314	0.951	4.794	0.734	0.531	2.676

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
1	11	167.89	0.749	1.735	0.537	0.446	1.033	0.320
1	12	167.15	0.631	1.770	0.515	0.378	1.059	0.308
1	13	169.80	0.707	1.684	0.543	0.416	0.992	0.320
1	14	175.56	0.593	1.760	0.505	0.338	1.003	0.288
1	15	168.39	0.642	1.714	0.533	0.381	1.018	0.317
1	16	178.60	0.725	1.726	0.505	0.406	0.966	0.283
1	17	171.22	0.625	1.666	0.512	0.365	0.973	0.299
1	18	162.72	0.532	1.658	0.518	0.327	1.019	0.318
1	19	172.46	0.641	1.708	0.575	0.372	0.990	0.333
1	20	184.50	0.681	1.854	0.602	0.369	1.005	0.326
2	86	179.56	0.676	1.813	0.456	0.376	1.010	0.254
2	87	170.78	0.691	1.779	0.430	0.405	1.042	0.252
2	88	198.25	0.699	1.849	0.472	0.353	0.933	0.238
2	89	177.89	0.711	1.845	0.553	0.400	1.037	0.311
2	90	175.84	0.645	1.876	0.415	0.367	1.067	0.236
2	91	202.35	0.890	1.813	0.496	0.440	0.896	0.245
2	92	186.07	0.667	1.728	0.496	0.358	0.929	0.267
2	93	178.27	0.709	1.801	0.439	0.398	1.010	0.246
2	94	180.60	0.672	1.766	0.440	0.372	0.978	0.244
2	95	188.06	0.671	1.775	0.525	0.357	0.944	0.279
3	161	201.58	0.764	1.886	0.494	0.379	0.936	0.245
3	162	202.19	0.677	1.789	0.471	0.335	0.885	0.233
3	163	196.35	0.841	1.809	0.472	0.428	0.921	0.240
3	164	201.56	0.795	1.877	0.474	0.394	0.931	0.235
3	165	186.69	0.799	1.827	0.459	0.428	0.979	0.246
3	166	186.44	0.761	1.786	0.466	0.408	0.958	0.250
3	167	181.05	0.641	1.796	0.450	0.354	0.992	0.249
3	168	185.08	0.682	1.847	0.512	0.368	0.998	0.277
3	169	193.52	0.672	1.809	0.429	0.347	0.935	0.222
3	170	184.26	0.707	1.730	0.501	0.384	0.939	0.272
4	236	198.30	0.805	1.703	0.510	0.406	0.859	0.257
4	237	195.72	0.849	1.772	0.501	0.434	0.905	0.256
4	238	186.48	0.671	1.757	0.422	0.360	0.942	0.226
4	239	184.86	0.672	1.764	0.489	0.364	0.954	0.265
4	240	199.52	0.684	1.713	0.505	0.343	0.859	0.253
4	241	183.88	0.685	1.620	0.465	0.373	0.881	0.253
4	242	186.43	0.861	1.735	0.441	0.462	0.931	0.237
4	243	184.24	0.674	1.725	0.501	0.366	0.936	0.272
4	244	200.07	0.828	1.775	0.484	0.414	0.887	0.242
4	245	179.12	0.690	1.721	0.434	0.385	0.961	0.242

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	OVARIES WEIGHT	% ADRENAL	% THYMUS	% OVARIES
1	11	167.89	0.050	0.177	0.147	0.030	0.105	0.088
1	12	167.15	0.056	0.151	0.102	0.034	0.090	0.061
1	13	169.80	0.058	0.144	0.103	0.034	0.085	0.061
1	14	175.56	0.058	0.119	0.108	0.033	0.068	0.062
1	15	168.39	0.056	0.187	0.152	0.033	0.111	0.090
1	16	178.60	0.073	0.147	0.139	0.041	0.082	0.078
1	17	171.22	0.073	0.112	0.108	0.043	0.065	0.063
1	18	162.72	0.058	0.129	0.122	0.036	0.079	0.075
1	19	172.46	0.064	0.144	0.145	0.037	0.083	0.084
1	20	184.50	0.064	0.214	0.166	0.035	0.116	0.090
2	86	179.56	0.058	0.239	0.156	0.032	0.133	0.087
2	87	170.78	0.060	0.185	0.120	0.035	0.108	0.070
2	88	198.25	0.069	0.249	0.137	0.035	0.126	0.069
2	89	177.89	0.059	0.168	0.138	0.033	0.094	0.078
2	90	175.84	0.076	0.250	0.138	0.043	0.142	0.078
2	91	202.35	0.074	0.164	0.177	0.037	0.081	0.087
2	92	186.07	0.067	0.242	0.134	0.036	0.130	0.072
2	93	178.27	0.067	0.169	0.151	0.038	0.095	0.085
2	94	180.60	0.047	0.147	0.106	0.026	0.081	0.059
2	95	188.06	0.058	0.252	0.122	0.031	0.134	0.065
3	161	201.58	0.070	0.170	0.107	0.035	0.084	0.053
3	162	202.19	0.056	0.283	0.130	0.028	0.140	0.064
3	163	196.35	0.058	0.163	0.106	0.030	0.083	0.054
3	164	201.56	0.065	0.158	0.161	0.032	0.078	0.080
3	165	186.69	0.059	0.163	0.141	0.032	0.087	0.076
3	166	186.44	0.073	0.155	0.111	0.039	0.083	0.060
3	167	181.05	0.058	0.217	0.154	0.032	0.120	0.085
3	168	185.08	0.062	0.196	0.125	0.033	0.106	0.068
3	169	193.52	0.064	0.285	0.176	0.033	0.147	0.091
3	170	184.26	0.085	0.174	0.127	0.046	0.094	0.069
4	236	198.30	0.091	0.183	0.127	0.046	0.092	0.064
4	237	195.72	0.080	0.218	0.334	0.041	0.111	0.171
4	238	186.48	0.054	0.225	0.124	0.029	0.121	0.066
4	239	184.86	0.099	0.226	0.198	0.054	0.122	0.107
4	240	199.52	0.048	0.225	0.173	0.024	0.113	0.087
4	241	183.88	0.090	0.236	0.154	0.049	0.128	0.084
4	242	186.43	0.082	0.156	0.134	0.044	0.084	0.072
4	243	184.24	0.057	0.237	0.116	0.031	0.129	0.063
4	244	200.07	0.087	0.213	0.368	0.043	0.106	0.184
4	245	179.12	0.046	0.140	0.107	0.026	0.078	0.060

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
5	296	337.24	2.273	1.612	10.004	0.674	0.478	2.966
5	297	322.63	2.338	1.927	9.716	0.725	0.597	3.011
5	298	312.77	2.080	1.446	9.470	0.665	0.462	3.028
5	299	314.51	2.234	1.308	9.911	0.710	0.416	3.151
5	300	342.10	2.288	1.554	10.167	0.669	0.454	2.972
5	301	327.63	2.332	1.768	9.210	0.712	0.540	2.811
5	302	299.20	2.144	1.386	9.471	0.717	0.463	3.165
5	303	344.32	2.390	1.379	10.733	0.694	0.400	3.117
5	304	320.23	2.336	1.711	10.179	0.729	0.534	3.179
5	305	351.66	2.542	2.092	11.003	0.723	0.595	3.129
6	371	338.85	2.495	1.796	9.412	0.736	0.530	2.778
6	372	340.23	2.312	1.441	10.229	0.680	0.424	3.006
6	373	339.78	2.136	1.279	9.425	0.629	0.376	2.774
6	374	303.42	2.131	1.516	8.555	0.702	0.500	2.820
6	375	319.32	2.101	1.413	9.182	0.658	0.443	2.875
6	376	359.60	2.512	1.889	10.224	0.699	0.525	2.843
6	377	391.05	2.602	1.702	11.873	0.665	0.435	3.036
6	378	338.34	2.253	1.336	10.007	0.666	0.395	2.958
6	379	326.02	2.295	1.444	9.270	0.704	0.443	2.843
6	380	387.34	2.831	1.778	12.007	0.731	0.459	3.100
7	446	334.39	2.202	1.746	8.921	0.659	0.522	2.668
7	447	352.64	2.413	1.465	9.314	0.684	0.415	2.641
7	448	377.91	2.566	1.459	10.490	0.679	0.386	2.776
7	449	368.20	2.556	1.845	10.481	0.694	0.501	2.847
7	450	346.46	2.331	1.629	8.961	0.673	0.470	2.586
7	451	362.77	2.463	1.399	10.382	0.679	0.386	2.862
7	452	367.52	2.356	1.729	10.724	0.641	0.470	2.918
7	453	372.02	2.391	1.667	10.123	0.643	0.448	2.721
7	454	371.57	2.637	1.685	10.841	0.710	0.453	2.918
7	455	329.36	2.278	1.676	9.535	0.692	0.509	2.895
8	521	355.10	2.376	1.520	11.112	0.669	0.428	3.129
8	522	340.67	2.241	1.379	9.784	0.658	0.405	2.872
8	523	375.68	2.605	1.583	10.228	0.693	0.421	2.723
8	524	385.56	2.545	1.405	11.246	0.660	0.364	2.917
8	525	290.26	1.945	1.182	8.345	0.670	0.407	2.875
8	526	334.81	2.272	1.454	9.188	0.679	0.434	2.744
8	527	356.12	2.489	1.921	10.077	0.699	0.539	2.830
8	528	331.87	2.305	1.298	9.679	0.695	0.391	2.917
8	529	350.89	2.371	1.761	9.518	0.676	0.502	2.713
8	530	346.13	2.216	1.681	9.512	0.640	0.486	2.748

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
5	296	337.24	1.114	2.023	0.826	0.330	0.600	0.245
5	297	322.63	1.096	1.910	0.711	0.340	0.592	0.220
5	298	312.77	1.044	1.763	0.806	0.334	0.564	0.258
5	299	314.51	1.017	1.994	0.772	0.323	0.634	0.245
5	300	342.10	0.997	1.956	0.788	0.291	0.572	0.230
5	301	327.63	1.066	1.893	0.746	0.325	0.578	0.228
5	302	299.20	0.977	1.904	0.712	0.327	0.636	0.238
5	303	344.32	1.290	1.933	0.824	0.375	0.561	0.239
5	304	320.23	0.940	1.890	0.737	0.294	0.590	0.230
5	305	351.66	1.194	1.936	0.918	0.340	0.551	0.261
6	371	338.85	1.096	1.946	0.676	0.323	0.574	0.199
6	372	340.23	1.019	1.961	0.680	0.300	0.576	0.200
6	373	339.78	1.134	1.952	0.629	0.334	0.574	0.185
6	374	303.42	1.049	1.823	0.662	0.346	0.601	0.218
6	375	319.32	1.145	1.900	0.626	0.359	0.595	0.196
6	376	359.60	1.156	1.971	0.769	0.321	0.548	0.214
6	377	391.05	1.098	2.000	0.743	0.281	0.511	0.190
6	378	338.34	1.100	1.983	0.703	0.325	0.586	0.208
6	379	326.02	0.985	1.936	0.628	0.302	0.594	0.193
6	380	387.34	1.118	1.985	0.814	0.289	0.512	0.210
7	446	334.39	1.002	1.863	0.707	0.300	0.557	0.211
7	447	352.64	1.198	2.021	0.725	0.340	0.573	0.206
7	448	377.91	1.182	1.999	0.792	0.313	0.529	0.210
7	449	368.20	1.138	1.791	0.723	0.309	0.486	0.196
7	450	346.46	1.160	1.996	0.717	0.335	0.576	0.207
7	451	362.77	1.134	2.071	0.732	0.313	0.571	0.202
7	452	367.52	1.019	1.944	0.741	0.277	0.529	0.202
7	453	372.02	1.134	1.962	0.777	0.305	0.527	0.209
7	454	371.57	1.202	1.982	0.733	0.323	0.533	0.197
7	455	329.36	1.076	2.005	0.647	0.327	0.609	0.196
8	521	355.10	1.064	1.998	0.698	0.300	0.563	0.197
8	522	340.67	1.094	1.885	0.679	0.321	0.553	0.199
8	523	375.68	1.094	2.006	0.710	0.291	0.534	0.189
8	524	385.56	1.272	1.895	0.719	0.330	0.491	0.186
8	525	290.26	0.904	1.836	0.493	0.311	0.633	0.170
8	526	334.81	0.991	1.990	0.689	0.296	0.594	0.206
8	527	356.12	1.156	1.881	0.716	0.325	0.528	0.201
8	528	331.87	1.071	1.961	0.677	0.323	0.591	0.204
8	529	350.89	1.022	1.918	0.654	0.291	0.547	0.186
8	530	346.13	1.145	1.926	0.692	0.331	0.556	0.200

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	TESTES WEIGHT	% ADRENAL	% THYMUS	% TESTES
5	296	337.24	0.063	0.368	5.287	0.019	0.109	1.568
5	297	322.63	0.064	0.138	6.427	0.020	0.043	1.992
5	298	312.77	0.052	0.251	6.861	0.017	0.080	2.194
5	299	314.51	0.051	0.178	4.622	0.016	0.057	1.470
5	300	342.10	0.063	0.222	5.308	0.018	0.065	1.552
5	301	327.63	0.080	0.169	6.381	0.024	0.052	1.948
5	302	299.20	0.090	0.220	4.036	0.030	0.074	1.349
5	303	344.32	0.055	0.168	5.124	0.016	0.049	1.488
5	304	320.23	0.071	0.219	6.972	0.022	0.068	2.177
5	305	351.66	0.069	0.219	6.860	0.020	0.062	1.951
6	371	338.85	0.071	0.254	6.300	0.021	0.075	1.859
6	372	340.23	0.075	0.315	4.877	0.022	0.093	1.433
6	373	339.78	0.048	0.155	4.651	0.014	0.046	1.369
6	374	303.42	0.058	0.148	6.134	0.019	0.049	2.022
6	375	319.32	0.040	0.123	4.263	0.013	0.039	1.335
6	376	359.60	0.070	0.212	8.241	0.019	0.059	2.292
6	377	391.05	0.066	0.351	5.482	0.017	0.090	1.402
6	378	338.34	0.055	0.215	4.763	0.016	0.064	1.408
6	379	326.02	0.070	0.262	5.203	0.021	0.080	1.596
6	380	387.34	0.061	0.397	5.694	0.016	0.102	1.470
7	446	334.39	0.067	0.306	3.261	0.020	0.092	0.975
7	447	352.64	0.045	0.206	4.948	0.013	0.058	1.403
7	448	377.91	0.062	0.214	4.796	0.016	0.057	1.269
7	449	368.20	0.088	0.219	8.275	0.024	0.059	2.247
7	450	346.46	0.070	0.222	4.866	0.020	0.064	1.404
7	451	362.77	0.058	0.190	5.103	0.016	0.052	1.407
7	452	367.52	0.058	0.394	5.079	0.016	0.107	1.382
7	453	372.02	0.081	0.185	8.024	0.022	0.050	2.157
7	454	371.57	0.063	0.383	5.587	0.017	0.103	1.504
7	455	329.36	0.085	0.332	7.630	0.026	0.101	2.317
8	521	355.10	0.062	0.198	5.018	0.017	0.056	1.413
8	522	340.67	0.052	0.239	4.631	0.015	0.070	1.359
8	523	375.68	0.067	0.332	5.218	0.018	0.088	1.389
8	524	385.56	0.054	0.255	5.059	0.014	0.066	1.312
8	525	290.26	0.074	0.288	4.596	0.025	0.099	1.583
8	526	334.81	0.082	0.354	5.157	0.024	0.106	1.540
8	527	356.12	0.062	0.247	7.737	0.017	0.069	2.173
8	528	331.87	0.054	0.208	4.652	0.016	0.063	1.402
8	529	350.89	0.075	0.127	7.560	0.021	0.036	2.155
8	530	346.13	0.058	0.152	7.138	0.017	0.044	2.062



HISTOPATHOLOGY  
DATA

## REPORTS CODE TABLE

N	Tissues within normal histological limits
A	Autolysis precluding adequate evaluation
U	Tissues unavailable/unsuitable for evaluation
P	Present
*	Tissues not required by Protocol
1	Minimal
2	Mild
3	Moderate
4	Marked

## Abbreviation List

NOS	Not otherwise specified
Hyp.	Hyperplasia
Chrom.	Chromophobe
PB	Peribronchiolar
Seminif.	Seminiferous

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Project Summary Table

SUMMARY: Incidence of NEOPLASTIC and NON-NEOPLASTIC Microscopic Findings

PROJECT ID. NO: 930046		FATES: ALL		SEX: FEMALE					
DAYS : ALL									
GROUP:		1		2		3		4	
NUMBER OF ANIMALS:		10		10		10		10	
		#	%	#	%	#	%	#	%
BRAIN	# Ex	10		0		0		10	
NERVE	# Ex	10		0		0		10	
SPINAL CORD	# Ex	10		0		0		10	
SALIVARY GLAND	# Ex	10		0		0		10	
PANCREAS	# Ex	10		0		0		10	
Degeneration, Acinar		1	(10)	0		0		0	(0)
Inflammation, Chronic		1	(10)	0		0		1	(10)
MANDIBULAR LYMPH NODE	# Ex	10		0		0		10	
Hemorrhage		0	(0)	0		0		1	(10)
ZYMBAL'S GLAND	# Ex	10		0		0		10	
PITUITARY	# Ex	10		0		0		9	
Cyst, NOS, Pars Distalis		1	(10)	0		0		0	(0)
Hyp., Chrom., Pars Distalis		0	(0)	0		0		1	(11)
ADRENALS	# Ex	10		0		0		10	
THYROID	# Ex	10		0		0		10	
PARATHYROID	# Ex	10		0		0		10	
TRACHEA	# Ex	10		0		0		10	

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
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Six Month Interim Sacrifice

Project Summary Table

SUMMARY: Incidence of NEOPLASTIC and NON-NEOPLASTIC Microscopic Findings

PROJECT ID. NO: 930046  
DAYS : ALL

FATES: ALL  
SEX: FEMALE

GROUP:

NUMBER OF ANIMALS:

1  
10

2  
10

3  
10

4  
10

	#	%	#	%	#	%	#	%
ESOPHAGUS	# Ex 10		0		0		10	
THYMUS	# Ex 10		0		0		10	
Hemorrhage	1	(10)	0		0		4	(40)
Pigmentation, NOS	0	(0)	0		0		1	(10)
HEART	# Ex 10		0		0		10	
Inflammation, Chronic	3	(30)	0		0		2	(20)
COLON	# Ex 10		0		0		10	
JEJUNUM	# Ex 10		0		0		10	
AORTA	# Ex 10		0		0		10	
LIVER	# Ex 10		10		10		10	
Inflammation, Chronic	8	(80)	4	(40)	7	(70)	7	(70)
Basophilic Focus	1	(10)	0	(0)	1	(10)	1	(10)
Bile Duct Hyperplasia	1	(10)	0	(0)	0	(0)	1	(10)
Necrosis, Hepatocellular	0	(0)	1	(10)	0	(0)	3	(30)
SPLEEN	# Ex 10		10		10		10	
Pigmentation, NOS	10	(100)	10	(100)	10	(100)	7	(70)
Hyperplasia, Erythroid Cell	10	(100)	6	(60)	2	(20)	1	(10)
Hyperplasia, Lymphoid	0	(0)	0	(0)	0	(0)	1	(10)
TONGUE	# Ex 10		0		0		10	
SKELETAL MUSCLE	# Ex 10		0		0		10	

(Report Continued)

Pathology Associates, Inc.  
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Six Month Interim Sacrifice

Project Summary Table

SUMMARY: Incidence of NEOPLASTIC and NON-NEOPLASTIC Microscopic Findings

PROJECT ID. NO: 930046  
DAYS : ALL

FATES: ALL  
SEX: FEMALE

GROUP:  
NUMBER OF ANIMALS:

	1	2	3	4
10	10	10	10	10

	#	%	#	%	#	%	#	%
LUNGS	# Ex	10		10		10		10
Lymphocytic Infiltrates, PB		10 (100)		10 (100)		10 (100)		10 (100)
Inflammation, Chronic		3 (30)		9 (90)		7 (70)		3 (30)
KIDNEYS	# Ex	10		10		10		10
Pigmentation, NOS		10 (100)		10 (100)		10 (100)		8 (80)
Mineralization, NOS		10 (100)		10 (100)		6 (60)		10 (100)
Lymphocytic Infiltrates		3 (30)		2 (20)		0 (0)		0 (0)
Hyp., Epithelial, Pelvis		0 (0)		2 (20)		0 (0)		1 (10)
Degeneration, Tubular		0 (0)		1 (10)		0 (0)		0 (0)
Regeneration, Tubular		0 (0)		0 (0)		0 (0)		1 (10)
URINARY BLADDER	# Ex	10		0		0		10
STOMACH	# Ex	10		0		0		10
DUODENUM	# Ex	10		0		0		10
ILEUM	# Ex	10		0		0		10
CECUM	# Ex	10		0		0		10
RECTUM	# Ex	10		0		0		10
MESENTERIC LYMPH NODE	# Ex	10		0		0		10
Histiocytosis		0 (0)		0		0		1 (10)
OVARIES	# Ex	10		0		0		10
Cyst, NOS		0 (0)		0		0		1 (10)

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Project Summary Table

SUMMARY: Incidence of NEOPLASTIC and NON-NEOPLASTIC Microscopic Findings

PROJECT ID. NO: 930046  
 DAYS : ALL

FATES: ALL  
 SEX: FEMALE

GROUP:  
 NUMBER OF ANIMALS:

1 2 3 4  
 10 10 10 10

	#	%	#	%	#	%	#	%
UTERUS	# Ex	10		1	0		10	
Dilatation, Bilateral		5 (50)		1 (100)		0		5 (50)
SKIN	# Ex	10		0		0		10
CLITORAL	# Ex	10		0		0		10
Lymphocytic Infiltrates		1 (10)		0		0		4 (40)
Inflammation, Suppurative		0 (0)		0		0		1 (10)
EYES	# Ex	10		0		0		10
Microgranuloma		2 (20)		0		0		4 (40)
HARDERIAN GLAND	# Ex	10		0		0		10
Lymphocytic Infiltrates		4 (40)		0		0		6 (60)
FEMUR/STERNUM	# Ex	10		0		0		10
Hyperplasia, Erythroid Cell		4 (40)		0		0		1 (10)
Fibrosis		2 (20)		0		0		0 (0)
Hyperplasia, Myeloid		1 (10)		0		0		0 (0)
NASAL	# Ex	10		0		0		10
Inflammation, Chronic/Active		1 (10)		0		0		0 (0)
MAMMARY GLAND	# Ex	10		0		0		10

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Project Summary Table  
 SUMMARY: Incidence of NEOPLASTIC and NON-NEOPLASTIC Microscopic Findings

PROJECT ID. NO: 93-004  
 DAYS : ALL

FATES: ALL  
 SEX: MALE

GROUP:

NUMBER OF ANIMALS:

5 6 7 8  
 10 10 10 10

	#	%	#	%	#	%	#	%
BRAIN	# Ex 10		0		0		10	
NERVE	# Ex 10		0		0		10	
SPINAL CORD	# Ex 10		0		0		10	
SALIVARY GLAND	# Ex 10		0		0		10	
PANCREAS	# Ex 10		0		0		10	
Degeneration, Acinar	1 (10)		0		0		4 (40)	
MANDIBULAR LYMPH NODE	# Ex 8		1		0		10	
Hemorrhage	0 (0)		1 (100)		0		1 (10)	
Hyperplasia, Lymphoid	0 (0)		0 (0)		0		1 (10)	
ZYMBAL'S GLAND	# Ex 9		0		0		10	
PITUITARY	# Ex 10		0		0		10	
Cyst, NOS, Pars Distalis	0 (0)		0		0		1 (10)	
ADRENALS	# Ex 10		0		0		10	
THYROID	# Ex 10		0		0		10	
PARATHYROID	# Ex 10		0		0		10	
TRACHEA	# Ex 10		0		0		10	

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Project Summary Table

SUMMARY: Incidence of NEOPLASTIC and NON-NEOPLASTIC Microscopic Findings

PROJECT ID. NO: 93-004		FATES: ALL		SEX: MALE					
DAYS : ALL									
GROUP:		5		6		7		8	
NUMBER OF ANIMALS:		10		10		10		10	
	# Ex	# %	# %	# %	# %	# %	# %	# %	# %
ESOPHAGUS	# Ex	10		0		0		10	
THYMUS	# Ex	10		1		0		10	
Hemorrhage		2 (20)		1 (100)		0		5 (50)	
HEART	# Ex	10		0		0		10	
Inflammation, Chronic		2 (20)		0		0		6 (60)	
COLON	# Ex	10		0		0		10	
JEJUNUM	# Ex	10		0		0		10	
AORTA	# Ex	10		0		0		10	
LIVER	# Ex	10		10		10		10	
Inflammation, Chronic		1 (10)		0 (0)		1 (10)		1 (10)	
Bile Duct Hyperplasia		0 (0)		2 (20)		1 (10)		2 (20)	
Necrosis, Hepatocellular		1 (10)		3 (30)		4 (40)		2 (20)	
Inflammation, Chronic/Active		1 (10)		2 (20)		2 (20)		0 (0)	
Lymphocytic Infiltrates		0 (0)		1 (10)		1 (10)		0 (0)	
Inflammation, Subacute		0 (0)		0 (0)		1 (10)		0 (0)	
SPLEEN	# Ex	10		10		10		10	
Pigmentation, NOS		10 (100)		9 (90)		2 (20)		3 (30)	
Hyperplasia, Erythroid Cell		10 (100)		6 (60)		2 (20)		3 (30)	
Hyperplasia, Lymphoid		0 (0)		1 (10)		3 (30)		3 (30)	
Fibrosis		0 (0)		0 (0)		1 (10)		0 (0)	
TONGUE	# Ex	10		0		0		10	
SKELETAL MUSCLE	# Ex	10		0		0		10	

(Report Continued)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Project Summary Table

SUMMARY: Incidence of NEOPLASTIC and NON-NEOPLASTIC Microscopic Findings

PROJECT ID. NO: 93-004  
DAYS : ALL

FATES: ALL  
SEX: MALE

GROUP:

NUMBER OF ANIMALS:

5  
10

6  
10

7  
10

8  
10

	#	%	#	%	#	%	#	%
LUNGS	# Ex	10	10	10	10	9	9	
Lymphocytic Infiltrates, PB		10 (100)	10 (100)	10 (100)	9 (100)	9 (100)		
Inflammation, Chronic		7 (70)	4 (40)	7 (70)	7 (78)			
KIDNEYS	# Ex	10	10	10	10			
Chronic Progress. Nephropathy		10 (100)	10 (100)	10 (100)	10 (100)			
Hyaline Droplets		10 (100)	10 (100)	1 (10)	0 (0)			
URINARY BLADDER	# Ex	10	0	0	10			
Calculus, NOS		3 (30)	0	0	1 (10)			
PROSTATE	# Ex	10	0	0	10			
Inflammation, Suppurative		0 (0)	0	0	1 (10)			
STOMACH	# Ex	10	0	0	10			
Degeneration, Cystic		1 (10)	0	0	0 (0)			
DUODENUM	# Ex	10	0	0	10			
ILEUM	# Ex	10	0	0	10			
CECUM	# Ex	10	0	0	10			
RECTUM	# Ex	10	0	0	10			
MESENTERIC LYMPH NODE	# Ex	10	0	0	10			
Pigmentation, NOS		1 (10)	0	0	0 (0)			
TESTES	# Ex	10	0	0	10			
Degeneration, Seminif. Tubular		1 (10)	0	0	0 (0)			

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Project Summary Table

SUMMARY: Incidence of NEOPLASTIC and NON-NEOPLASTIC Microscopic Findings

PROJECT ID. NO: 93-004		FATES: ALL		SEX: MALE					
DAYS : ALL									
GROUP:		5		6		7		8	
NUMBER OF ANIMALS:		10		10		10		10	
		#	%	#	%	#	%	#	%
EPIDIDYMUS	# Ex	10		0		0		10	
Hypospermia		1	(10)	0		0		0	(0)
SEMINAL VESICLES	# Ex	10		0		0		10	
SKIN	# Ex	10		0		0		10	
PREPUTIAL GLAND	# Ex	10		0		0		10	
Inflammation, Chronic/Active		1	(10)	0		0		0	(0)
Mineralization, NOS		1	(10)	0		0		0	(0)
Lymphocytic Infiltrates		6	(60)	0		0		2	(20)
Inflammation, Suppurative		1	(10)	0		0		3	(30)
Inflammation, Chronic		0	(0)	0		0		3	(30)
EYES	# Ex	10		0		0		10	
Microgranuloma		3	(30)	0		0		5	(50)
HARDERIAN GLAND	# Ex	10		0		0		10	
Lymphocytic Infiltrates		1	(10)	0		0		0	(0)
FEMUR/STERNUM	# Ex	10		0		0		10	
Hyperplasia, Erythroid Cell		7	(70)	0		0		0	(0)
NASAL	# Ex	10		0		0		10	
Inflammation, Suppurative		1	(10)	0		0		2	(20)
Foreign Body		1	(10)	0		0		0	(0)
Squamous Metaplasia		0	(0)	0		0		2	(20)
MAMMARY GLAND	# Ex	10		0		0		10	

(End of Report)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Severity Summary Table

PROJECT ID. NO: 930046		FATES: ALL		SEX: FEMALE			
DAYS: ALL							
GROUP:		1		2		3	
NUMBER OF ANIMALS:		10		10		10	
		#	SEV	#	SEV	#	SEV
BRAIN	# Ex	10		0		0	
NERVE	# Ex	10		0		0	
SPINAL CORD	# Ex	10		0		0	
SALIVARY GLAND	# Ex	10		0		0	
PANCREAS	# Ex	10		0		0	
Degeneration, Acinar		1	0.10	0		0	
Inflammation, Chronic		1	0.10	0		0	
MANDIBULAR LYMPH NODE	# Ex	10		0		0	
Hemorrhage		0		0		0	
ZYMBAL'S GLAND	# Ex	10		0		0	
PITUITARY	# Ex	10		0		0	
Hyp., Chrom., Pars Distalis		0		0		0	
ADRENALS	# Ex	10		0		0	
THYROID	# Ex	10		0		0	
PARATHYROID	# Ex	10		0		0	
TRACHEA	# Ex	10		0		0	

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Severity Summary Table

PROJECT ID. NO: 930046  
DAYS: ALL

FATES: ALL  
SEX: FEMALE

GROUP:  
NUMBER OF ANIMALS:

1 2 3 4  
10 10 10 10

	#	Ex	#	SEV	#	SEV	#	SEV	#	SEV
ESOPHAGUS			10		0		0		10	
THYMUS	#	Ex	10		0		0		10	
Hemorrhage			1	0.10	0		0		4	0.40
Pigmentation, NOS			0		0		0		1	0.10
HEART	#	Ex	10		0		0		10	
Inflammation, Chronic			3	0.30	0		0		2	0.20
COLON	#	Ex	10		0		0		10	
JEJUNUM	#	Ex	10		0		0		10	
AORTA	#	Ex	10		0		0		10	
LIVER	#	Ex	10		10		10		10	
Inflammation, Chronic			8	0.80	4	0.50	7	0.70	7	0.70
Bile Duct Hyperplasia			1	0.10	0		0		1	0.10
Necrosis, Hepatocellular			0		1	0.10	0		3	0.30
SPLEEN	#	Ex	10		10		10		10	
Pigmentation, NOS			10	2.40	10	1.70	10	1.40	7	0.90
Hyperplasia, Erythroid Cell			10	1.40	6	0.90	2	0.20	1	0.10
Hyperplasia, Lymphoid			0		0		0		1	0.10
TONGUE	#	Ex	10		0		0		10	
SKELETAL MUSCLE	#	Ex	10		0		0		10	
LUNGS	#	Ex	10		10		10		10	

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Severity Summary Table

PROJECT ID. NO: 930046  
DAYS: ALL

FATES: ALL  
SEX: FEMALE

GROUP:

NUMBER OF ANIMALS:

1 2 3 4  
10 10 10 10

	#	SEV	#	SEV	#	SEV	#	SEV
Lymphocytic Infiltrates, PB	10	1.40	10	1.90	10	1.40	10	2.00
Inflammation, Chronic	3	0.30	9	1.20	7	0.80	3	0.30
KIDNEYS	# Ex	10	10		10		10	
Pigmentation, NOS	10	2.20	10	1.20	10	1.00	8	0.80
Mineralization, NOS	10	1.30	10	1.10	6	0.60	10	1.00
Lymphocytic Infiltrates	3	0.30	2	0.20	0		0	
Hyp., Epithelial, Pelvis	0		2	0.20	0		1	0.10
Degeneration, Tubular	0		1	0.20	0		0	
Regeneration, Tubular	0		0		0		1	0.10
URINARY BLADDER	# Ex	10	0		0		10	
STOMACH	# Ex	10	0		0		10	
DUODENUM	# Ex	10	0		0		10	
ILEUM	# Ex	10	0		0		10	
CECUM	# Ex	10	0		0		10	
RECTUM	# Ex	10	0		0		10	
MESENTERIC LYMPH NODE	# Ex	10	0		0		10	
Histiocytosis	0		0		0		1	0.20
OVARIES	# Ex	10	0		0		10	
UTERUS	# Ex	10	1		0		10	
Dilatation, Bilateral	5	1.60	1	3.00	0		5	1.30

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Severity Summary Table

PROJECT ID. NO: 930046		FATES: ALL					
DAYS: ALL		SEX: FEMALE					
GROUP:		1	2	3	4		
NUMBER OF ANIMALS:		10	10	10	10		
		#	SEV	#	SEV	#	SEV
SKIN	# Ex	10		0		0	
CLITORAL	# Ex	10		0		10	
Lymphocytic Infiltrates		1	0.10	0		4	0.60
Inflammation, Suppurative		0		0		1	0.10
EYES	# Ex	10		0		10	
Microgranuloma		2	0.20	0		4	0.40
HARDERIAN GLAND	# Ex	10		0		10	
Lymphocytic Infiltrates		4	0.50	0		6	0.70
FEMUR/STERNUM	# Ex	10		0		10	
Hyperplasia, Erythroid Cell		4	0.40	0		1	0.10
Fibrosis		2	0.20	0		0	
Hyperplasia, Myeloid		1	0.20	0		0	
NASAL	# Ex	10		0		10	
Inflammation, Chronic/Active		1	0.20	0		0	
MAMMARY GLAND	# Ex	10		0		10	

\* Severity calculated by the number of tissues examined.

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Severity Summary Table

PROJECT ID. NO: 93-004  
DAYS: ALL

FATES: ALL  
SEX: MALE

GROUP:  
NUMBER OF ANIMALS:

10 5 10 6 10 7 10 8

	#	SEV	#	SEV	#	SEV	#	SEV
BRAIN	# Ex 10		0		0		10	
NERVE	# Ex 10		0		0		10	
SPINAL CORD	# Ex 10		0		0		10	
SALIVARY GLAND	# Ex 10		0		0		10	
PANCREAS	# Ex 10		0		0		10	
Degeneration, Acinar	1	0.10	0		0		4	0.40
MANDIBULAR LYMPH NODE	# Ex 8		1		0		10	
Hemorrhage	0		1	2.00	0		1	0.10
Hyperplasia, Lymphoid	0		0		0		1	0.20
ZYMBAL'S GLAND	# Ex 9		0		0		10	
PITUITARY	# Ex 10		0		0		10	
ADRENALS	# Ex 10		0		0		10	
THYROID	# Ex 10		0		0		10	
PARATHYROID	# Ex 10		0		0		10	
TRACHEA	# Ex 10		0		0		10	
ESOPHAGUS	# Ex 10		0		0		10	

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Severity Summary Table

PROJECT ID. NO: 93-004  
 DAYS: ALL

FATES: ALL  
 SEX: MALE

GROUP:  
 NUMBER OF ANIMALS:

5 6 7 8  
 10 10 10 10

	#	SEV	#	SEV	#	SEV	#	SEV
THYMUS	# Ex							
Hemorrhage	2	0.20	1	1.00	0		5	0.70
HEART	# Ex							
Inflammation, Chronic	2	0.20	0		0		10	
			0		0		6	0.60
COLON	# Ex							
	10		0		0		10	
JEJUNUM	# Ex							
	10		0		0		10	
AORTA	# Ex							
	10		0		0		10	
LIVER	# Ex							
Inflammation, Chronic	1	0.10	0		1	0.10	1	0.10
Bile Duct Hyperplasia	0		2	0.20	1	0.10	2	0.20
Necrosis, Hepatocellular	1	0.10	3	0.30	4	0.60	2	0.20
Inflammation, Chronic/Active	1	0.10	2	0.20	2	0.30	0	
Lymphocytic Infiltrates	0		1	0.10	1	0.10	0	
Inflammation, Subacute	0		0		1	0.10	0	
SPLEEN	# Ex							
Pigmentation, NOS	10	2.10	9	1.10	2	0.20	3	0.30
Hyperplasia, Erythroid Cell	10	1.80	6	0.70	2	0.20	3	0.30
Hyperplasia, Lymphoid	0		1	0.10	3	0.40	3	0.50
Fibrosis	0		0		1	0.10	0	
TONGUE	# Ex							
	10		0		0		10	
SKELETAL MUSCLE	# Ex							
	10		0		0		10	
LUNGS	# Ex							
	10		10		10		9	

(Report Continued)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Severity Summary Table

PROJECT ID. NO: 93-004  
DAYS: ALL

FATES: ALL  
SEX: MALE

GROUP:

NUMBER OF ANIMALS:

5 6 7 8  
10 10 10 10

	#	SEV	#	SEV	#	SEV	#	SEV
Lymphocytic Infiltrates, PB	10	2.00	10	1.50	10	1.30	9	1.56
Inflammation, Chronic	7	0.80	4	0.40	7	0.90	7	1.00
KIDNEYS	#	Ex	10		10		10	
Chronic Progress. Nephropathy	10	1.80	10	1.70	10	1.20	10	1.40
Hyaline Droplets	10	2.30	10	1.70	1	0.10	0	
URINARY BLADDER	#	Ex	10		0		10	
PROSTATE	#	Ex	10		0		10	
Inflammation, Suppurative	0		0		0		1	0.10
STOMACH	#	Ex	10		0		10	
Degeneration, Cystic	1	0.10	0		0		0	
DUODENUM	#	Ex	10		0		10	
ILEUM	#	Ex	10		0		10	
CECUM	#	Ex	10		0		10	
RECTUM	#	Ex	10		0		10	
MESENTERIC LYMPH NODE	#	Ex	10		0		10	
Pigmentation, NOS	1	0.20	0		0		0	
TESTES	#	Ex	10		0		10	
Degeneration, Seminif. Tubular	1	0.30	0		0		0	

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

### Severity Summary Table

PROJECT ID. NO: 93-004		FATES: ALL	
DAYS: ALL		SEX: MALE	
GROUP:		5	6
NUMBER OF ANIMALS:		10	10
			7
			10
			8
EPIDIDYMU	# Ex	10	0
Hypospermia		1 0.20	0
SEMINAL VESICLES	# Ex	10	0
SKIN	# Ex	10	0
PREPUTIAL GLAND	# Ex	10	0
Inflammation, Chronic/Active		1 0.30	0
Mineralization, NOS		1 0.20	0
Lymphocytic Infiltrates		6 1.00	0
Inflammation, Suppurative		1 0.20	0
Inflammation, Chronic		0	0
EYES	# Ex	10	0
Microgranuloma		3 0.30	0
HARDERIAN GLAND	# Ex	10	0
Lymphocytic Infiltrates		1 0.20	0
FEMUR/STERNUM	# Ex	10	0
Hyperplasia, Erythroid Cell		7 1.00	0
NASAL	# Ex	10	0
Inflammation, Suppurative		1 0.30	0
Squamous Metaplasia		0	0
MAMMARY GLAND	# Ex	10	0

\* Severity calculated by the number of tissues examined.

(End of Report)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 1  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020
BRAIN	N	N	N	N	N	N	N	N	N	N
NERVE	N	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N	N
PANCREAS		N	N	N	N	N	N	N	N	N
Degeneration, Acinar	1	-	-	-	-	-	-	-	-	-
Inflammation, Chronic	1	-	-	-	-	-	-	-	-	-
MANDIBULAR LYMPH NODE	N	N	N	N	N	N	N	N	N	N
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N	N
PITUITARY	N	N	N	N	N		N	N	N	N
Cyst, NOS, Pars Distalis	-	-	-	-	-	P	-	-	-	-
ADRENALS	N	N	N	N	N	N	N	N	N	N
THYROID	N	N	N	N	N	N	N	N	N	N
PARATHYROID	N	N	N	N	N	N	N	N	N	N

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 1  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020
TRACHEA	N	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N	N
THYMUS Hemorrhage	N -	N -	N -	N -	N -	N 1	N -	N -	N -	N -
HEART Inflammation, Chronic	N -	N -	N -	N -	N -	N -	N -	N 1	N 1	N 1
COLON	N	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N	N
AORTA	N	N	N	N	N	N	N	N	N	N
LIVER Inflammation, Chronic	1	1	1	1	N -	N 1	N 1	N 1	N 1	N -
Basophilic Focus	-	-	-	P	-	-	-	-	-	-
Bile Duct Hyperplasia	-	-	-	-	-	-	-	-	1	-
SPLEEN Pigmentation, NOS	2	3	3	3	2	2	2	2	2	3
Hyperplasia, Erythroid Cell	2	2	2	1	1	1	2	1	1	1

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 1  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020
TONGUE	N	N	N	N	N	N	N	N	N	N
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N	N
LUNGS										
Lymphocytic Infiltrates, PB	2	1	1	1	1	2	2	2	1	1
Inflammation, Chronic	-	1	-	-	1	-	1	-	-	-
KIDNEYS										
Pigmentation, NOS	2	2	2	2	2	2	3	2	2	3
Mineralization, NOS	1	1	1	1	2	1	2	1	1	2
Lymphocytic Infiltrates	1	-	1	-	-	-	-	-	1	-
URINARY BLADDER	N	N	N	N	N	N	N	N	N	N
STOMACH	N	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N	N	N
CECUM	N	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N	N

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 1  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020
MESENTERIC LYMPH NODE	N	N	N	N	N	N	N	N	N	N
OVARIES	N	N	N	N	N	N	N	N	N	N
UTERUS Dilatation, Bilateral	-	-	-	-	-	4	2	2	4	4
SKIN	N	N	N	N	N	N	N	N	N	N
CLITORAL Lymphocytic Infiltrates	N	N	N	N	N	N	N	N	N	1
EYES Microgranuloma	N	N	1	N	N	N	N	1	N	N
HARDERIAN GLAND Lymphocytic Infiltrates	N	N	1	N	1	N	1	N	2	N
FEMUR/STERNUM Hyperplasia, Erythroid Cell Fibrosis Hyperplasia, Myeloid	N	N	1	1	-	N	1	N	1	N
NASAL Inflammation, Chronic/Active	N	N	N	2	N	N	N	N	N	N

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Tabulated Animal Data

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PROJECT ID: 930046  
DAYS: ALL

GROUP: 1  
FATES: ALL

SEX: FEMALE

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ANIMAL ID:	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020
MAMMARY GLAND	N	N	N	N	N	N	N	N	N	N

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(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 2  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	2-086	2-087	2-088	2-089	2-090	2-091	2-092	2-093	2-094	2-095
BRAIN	*	*	*	*	*	*	*	*	*	*
NERVE	*	*	*	*	*	*	*	*	*	*
SPINAL CORD	*	*	*	*	*	*	*	*	*	*
SALIVARY GLAND	*	*	*	*	*	*	*	*	*	*
PANCREAS	*	*	*	*	*	*	*	*	*	*
MANDIBULAR LYMPH NODE	*	*	*	*	*	*	*	*	*	*
ZYMBAL'S GLAND	*	*	*	*	*	*	*	*	*	*
PITUITARY	*	*	*	*	*	*	*	*	*	*
ADRENALS	*	*	*	*	*	*	*	*	*	*
THYROID	*	*	*	*	*	*	*	*	*	*
PARATHYROID	*	*	*	*	*	*	*	*	*	*
TRACHEA	*	*	*	*	*	*	*	*	*	*

(Report Continued)



Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 2  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	2-086	2-087	2-088	2-089	2-090	2-091	2-092	2-093	2-094	2-095
ESOPHAGUS	*	*	*	*	*	*	*	*	*	*
THYMUS	*	*	*	*	*	*	*	*	*	*
HEART	*	*	*	*	*	*	*	*	*	*
COLON	*	*	*	*	*	*	*	*	*	*
JEJUNUM	*	*	*	*	*	*	*	*	*	*
AORTA	*	*	*	*	*	*	*	*	*	*
LIVER	N	N	N		N	N	N			
Inflammation, Chronic	-	-	-	2	-	-	-	1	1	1
Necrosis, Hepatocellular	-	-	-	-	-	-	-	-	-	1
SPLEEN										
Pigmentation, NOS	1	2	2	2	2	1	2	2	1	2
Hyperplasia, Erythroid Cell	-	-	-	3	-	1	1	2	1	1
TONGUE	*	*	*	*	*	*	*	*	*	*
SKELETAL MUSCLE	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 2  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	2-086	2-087	2-088	2-089	2-090	2-091	2-092	2-093	2-094	2-095
LUNGS										
Lymphocytic Infiltrates, PB	3	2	2	2	2	2	2	1	2	1
Inflammation, Chronic	2	1	2	1	1	1	2	1	-	1
KIDNEYS										
Pigmentation, NOS	1	1	1	1	1	1	1	1	2	2
Mineralization, NOS	1	1	2	1	1	1	1	1	1	1
Lymphocytic Infiltrates	-	-	-	-	-	-	-	1	1	-
Hyp., Epithelial, Pelvis	-	-	-	-	-	-	1	-	1	-
Degeneration, Tubular	-	-	-	-	-	-	2	-	-	-
URINARY BLADDER	*	*	*	*	*	*	*	*	*	*
STOMACH	*	*	*	*	*	*	*	*	*	*
DUODENUM	*	*	*	*	*	*	*	*	*	*
ILEUM	*	*	*	*	*	*	*	*	*	*
CECUM	*	*	*	*	*	*	*	*	*	*
RECTUM	*	*	*	*	*	*	*	*	*	*
MESENTERIC LYMPH NODE	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 2  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	2-086	2-087	2-088	2-089	2-090	2-091	2-092	2-093	2-094	2-095
OVARIES	*	*	*	*	*	*	*	*	*	*
UTERUS	*	*	*	*	*	*	*	*	*	*
Dilatation, Bilateral	-	-	-	3	-	-	-	-	-	-
SKIN	*	*	*	*	*	*	*	*	*	*
CLITORAL	*	*	*	*	*	*	*	*	*	*
EYES	*	*	*	*	*	*	*	*	*	*
HARDERIAN GLAND	*	*	*	*	*	*	*	*	*	*
FEMUR/STERNUM	*	*	*	*	*	*	*	*	*	*
NASAL	*	*	*	*	*	*	*	*	*	*
MAMMARY GLAND	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Tabulated Animal Data

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PROJECT ID: 930046  
DAYS: ALL

GROUP: 3  
FATES: ALL

SEX: FEMALE

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ANIMAL ID:	3-161	3-162	3-163	3-164	3-165	3-166	3-167	3-168	3-169	3-170
BRAIN	*	*	*	*	*	*	*	*	*	*
NERVE	*	*	*	*	*	*	*	*	*	*
SPINAL CORD	*	*	*	*	*	*	*	*	*	*
SALIVARY GLAND	*	*	*	*	*	*	*	*	*	*
PANCREAS	*	*	*	*	*	*	*	*	*	*
MANDIBULAR LYMPH NODE	*	*	*	*	*	*	*	*	*	*
ZYMBAL'S GLAND	*	*	*	*	*	*	*	*	*	*
PITUITARY	*	*	*	*	*	*	*	*	*	*
ADRENALS	*	*	*	*	*	*	*	*	*	*
THYROID	*	*	*	*	*	*	*	*	*	*
PARATHYROID	*	*	*	*	*	*	*	*	*	*
TRACHEA	*	*	*	*	*	*	*	*	*	*

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(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 3  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	3-161	3-162	3-163	3-164	3-165	3-166	3-167	3-168	3-169	3-170
ESOPHAGUS	*	*	*	*	*	*	*	*	*	*
THYMUS	*	*	*	*	*	*	*	*	*	*
HEART	*	*	*	*	*	*	*	*	*	*
COLON	*	*	*	*	*	*	*	*	*	*
JEJUNUM	*	*	*	*	*	*	*	*	*	*
AORTA	*	*	*	*	*	*	*	*	*	*
LIVER		N		N				N		
Inflammation, Chronic	1	-	1	-	1	1	1	-	1	1
Basophilic Focus	-	-	-	-	-	-	-	-	-	P
SPLEEN										
Pigmentation, NOS	1	1	1	1	1	1	2	2	2	2
Hyperplasia, Erythroid Cell	-	1	-	1	-	-	-	-	-	-
TONGUE	*	*	*	*	*	*	*	*	*	*
SKELETAL MUSCLE	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 3  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	3-161	3-162	3-163	3-164	3-165	3-166	3-167	3-168	3-169	3-170
LUNGS										
Lymphocytic Infiltrates, PB	2	1	1	2	1	2	1	1	1	2
Inflammation, Chronic	-	-	1	1	1	2	1	-	1	1
KIDNEYS										
Pigmentation, NOS	1	1	1	1	1	1	1	1	1	1
Mineralization, NOS	1	-	1	-	-	-	1	1	1	1
URINARY BLADDER	*	*	*	*	*	*	*	*	*	*
STOMACH	*	*	*	*	*	*	*	*	*	*
DUODENUM	*	*	*	*	*	*	*	*	*	*
ILEUM	*	*	*	*	*	*	*	*	*	*
CECUM	*	*	*	*	*	*	*	*	*	*
RECTUM	*	*	*	*	*	*	*	*	*	*
MESENTERIC LYMPH NODE	*	*	*	*	*	*	*	*	*	*
OVARIES	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
 DAYS: ALL

GROUP: 3  
 FATES: ALL

SEX: FEMALE

ANIMAL ID:	3-161	3-162	3-163	3-164	3-165	3-166	3-167	3-168	3-169	3-170
UTERUS	*	*	*	*	*	*	*	*	*	*
SKIN	*	*	*	*	*	*	*	*	*	*
CLITORAL	*	*	*	*	*	*	*	*	*	*
EYES	*	*	*	*	*	*	*	*	*	*
HARDERIAN GLAND	*	*	*	*	*	*	*	*	*	*
FEMUR/STERNUM	*	*	*	*	*	*	*	*	*	*
NASAL	*	*	*	*	*	*	*	*	*	*
MAMMARY GLAND	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
DAYS: ALL

GROUP: 4  
FATES: ALL

SEX: FEMALE

ANIMAL ID:	4-236	4-237	4-238	4-239	4-240	4-241	4-242	4-243	4-244	4-245
BRAIN	N	N	N	N	N	N	N	N	N	N
NERVE	N	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N	N
PANCREAS Inflammation, Chronic	N	N	N	N	N	N	1	N	N	N
MANDIBULAR LYMPH NODE Hemorrhage	N	N	N	N	N	N	1	N	N	N
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N	N
PITUITARY Hyp., Chrom., Pars Distalis	N	2	N	N	N	N	N	U	N	N
ADRENALS	N	N	N	N	N	N	N	N	N	N
THYROID	N	N	N	N	N	N	N	N	N	N
PARATHYROID	N	N	N	N	N	N	N	N	N	N

(Report Continued)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046 DAYS: ALL		GROUP: 4 FATES: ALL		SEX: FEMALE						
ANIMAL ID:	4-236	4-237	4-238	4-239	4-240	4-241	4-242	4-243	4-244	4-245
TRACHEA	N	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N	N
THYMUS	N				N		N	N	N	N
Hemorrhage	-	1	1	1	-	1	-	-	-	-
Pigmentation, NOS	-	1	-	-	-	-	-	-	-	-
HEART		N	N	N	N	N	N	N	N	
Inflammation, Chronic	1	-	-	-	-	-	-	-	-	1
COLON	N	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N	N
AORTA	N	N	N	N	N	N	N	N	N	N
LIVER								N		
Inflammation, Chronic	1	1	-	1	1	1	1	-	-	1
Basophilic Focus	-	-	-	-	-	-	-	-	P	-
Bile Duct Hyperplasia	-	-	-	-	-	-	-	-	1	-
Necrosis, Hepatocellular	1	-	1	1	-	-	-	-	-	-

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
DAYS: ALL

GROUP: 4  
FATES: ALL

SEX: FEMALE

ANIMAL ID:	4-236	4-237	4-238	4-239	4-240	4-241	4-242	4-243	4-244	4-245
SPLEEN	N		N							N
Pigmentation, NOS	-	2	-	1	1	1	2	1	1	-
Hyperplasia, Erythroid Cell	-	-	-	-	-	-	-	1	-	-
Hyperplasia, Lymphoid	-	-	-	1	-	-	-	-	-	-
TONGUE	N	N	N	N	N	N	N	N	N	N
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N	N
LUNGS										
Lymphocytic Infiltrates, PB	2	2	2	2	2	2	2	2	2	2
Inflammation, Chronic	1	1	-	-	-	-	-	-	1	-
KIDNEYS										
Pigmentation, NOS	1	-	1	-	1	1	1	1	1	1
Mineralization, NOS	1	1	1	1	1	1	1	1	1	1
Hyp., Epithelial, Pelvis	-	-	-	-	1	-	-	-	-	-
Regeneration, Tubular	-	1	-	-	-	-	-	-	-	-
URINARY BLADDER	N	N	N	N	N	N	N	N	N	N
STOMACH	N	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N	N	N

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 930046  
DAYS: ALL

GROUP: 4  
FATES: ALL

SEX: FEMALE

ANIMAL ID:	4-236	4-237	4-238	4-239	4-240	4-241	4-242	4-243	4-244	4-245
CECUM	N	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE Histiocytosis	N	N	N	N	N	N	N	N	2	N
OVARIES Cyst, NOS	N	N	N	N	N	N	N	N	P	N
UTERUS Dilatation, Bilateral	N	4	4	N	2	2	1	N	N	N
SKIN	N	N	N	N	N	N	N	N	N	N
CLITORAL Lymphocytic Infiltrates	1	N	N	N	2	2	N	N	N	1
Inflammation, Suppurative	1	-	-	-	-	-	-	-	-	-
EYES Microgranuloma	N	N	N	1	1	N	1	1	N	N
HARDERIAN GLAND Lymphocytic Infiltrates	N	1	1	1	1	2	N	N	N	1

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Tabulated Animal Data

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PROJECT ID: 930046  
DAYS: ALL

GROUP: 4  
FATES: ALL

SEX: FEMALE

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ANIMAL ID:	4-236	4-237	4-238	4-239	4-240	4-241	4-242	4-243	4-244	4-245
FEMUR/STERNUM	N	N	N	N	N	N	N		N	N
Hyperplasia, Erythroid Cell	-	-	-	-	-	-	-	1	-	-
NASAL	N	N	N	N	N	N	N	N	N	N
MAMMARY GLAND	N	N	N	N	N	N	N	N	N	N

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(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 5  
 FATES: ALL

SEX: MALE

ANIMAL ID:	5-296	5-297	5-298	5-299	5-300	5-301	5-302	5-303	5-304	5-305
BRAIN	N	N	N	N	N	N	N	N	N	N
NERVE	N	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N	N
PANCREAS Degeneration, Acinar	N	N	N	N	N	N	N	N	1	N
MANDIBULAR LYMPH NODE	N	N	U	N	U	N	N	N	N	N
ZYMBAL'S GLAND	N	N	N	N	U	N	N	N	N	N
PITUITARY	N	N	N	N	N	N	N	N	N	N
ADRENALS	N	N	N	N	N	N	N	N	N	N
THYROID	N	N	N	N	N	N	N	N	N	N
PARATHYROID	N	N	N	N	N	N	N	N	N	N

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
DAYS: ALL

GROUP: 5  
FATES: ALL

SEX: MALE

ANIMAL ID:	5-296	5-297	5-298	5-299	5-300	5-301	5-302	5-303	5-304	5-305
TRACHEA	N	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N	N
THYMUS Hemorrhage	-	1	-	-	-	-	1	-	-	-
HEART Inflammation, Chronic	1	-	-	-	-	1	-	-	-	-
COLON	N	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N	N
AORTA	N	N	N	N	N	N	N	N	N	N
LIVER	N	N	N	N	N	N		N	N	
Inflammation, Chronic	-	-	-	-	-	-	1	-	-	-
Necrosis, Hepatocellular	-	-	-	-	-	-	-	-	-	1
Inflammation, Chronic/Active	-	-	-	-	-	-	-	-	-	1
SPLEEN										
Pigmentation, NOS	2	2	2	2	2	3	2	2	2	2
Hyperplasia, Erythroid Cell	2	2	1	1	2	2	2	2	2	2

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004 DAYS: ALL		GROUP: 5 FATES: ALL		SEX: MALE						
ANIMAL ID:	5-296	5-297	5-298	5-299	5-300	5-301	5-302	5-303	5-304	5-305
TONGUE	N	N	N	N	N	N	N	N	N	N
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N	N
LUNGS										
Lymphocytic Infiltrates, PB	2	2	2	2	2	2	2	2	2	2
Inflammation, Chronic	2	-	1	-	1	1	1	1	-	1
KIDNEYS										
Chronic Progress. Nephropathy	2	2	2	2	2	2	2	2	1	1
Hyaline Droplets	3	2	2	3	2	2	2	3	2	2
URINARY BLADDER										
Calculus, NOS	N	N	N	P	N	P	N	N	P	N
-	-	-	-	-	-	-	-	-	-	-
PROSTATE	N	N	N	N	N	N	N	N	N	N
STOMACH										
Degeneration, Cystic	1	N	N	N	N	N	N	N	N	N
-	-	-	-	-	-	-	-	-	-	-
DUODENUM	N	N	N	N	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N	N	N	N	N
CECUM	N	N	N	N	N	N	N	N	N	N

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004 DAYS: ALL		GROUP: 5 FATES: ALL		SEX: MALE						
ANIMAL ID:	5-296	5-297	5-298	5-299	5-300	5-301	5-302	5-303	5-304	5-305
RECTUM	N	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE Pigmentation, NOS	N	N	2	N	N	N	N	N	N	N
TESTES Degeneration, Seminif. Tubular	N	N	N	N	N	N	3	N	N	N
EPIDIDYMUS Hypospermia	N	N	N	N	N	N	2	N	N	N
SEMINAL VESICLES	N	N	N	N	N	N	N	N	N	N
SKIN	N	N	N	N	N	N	N	N	N	N
PREPUTIAL GLAND Inflammation, Chronic/Active	3	-	N	-	-	-	-	N	-	N
Mineralization, NOS	2	-	-	-	-	-	-	-	-	-
Lymphocytic Infiltrates	-	2	-	2	1	2	2	-	1	-
Inflammation, Suppurative	-	-	-	-	-	-	2	-	-	-
EYES Microgranuloma	1	N	1	1	N	N	N	N	N	N
HARDERIAN GLAND Lymphocytic Infiltrates	N	N	N	N	N	N	2	N	N	N

(Report Continued)



Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 5  
 FATES: ALL

SEX: MALE

ANIMAL ID:	5-296	5-297	5-298	5-299	5-300	5-301	5-302	5-303	5-304	5-305
FEMUR/STERNUM	N	N							N	
Hyperplasia, Erythroid Cell	-	-	1	2	1	1	1	2	-	2
NASAL	N	N	N	N		N	N	N	N	N
Inflammation, Suppurative	-	-	-	-	3	-	-	-	-	-
Foreign Body	-	-	-	-	P	-	-	-	-	-
MAMMARY GLAND	N	N	N	N	N	N	N	N	N	N

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 6  
 FATES: ALL

SEX: MALE

ANIMAL ID:	6-371	6-372	6-373	6-374	6-375	6-376	6-377	6-378	6-379	6-380
BRAIN	*	*	*	*	*	*	*	*	*	*
NERVE	*	*	*	*	*	*	*	*	*	*
SPINAL CORD	*	*	*	*	*	*	*	*	*	*
SALIVARY GLAND	*	*	*	*	*	*	*	*	*	*
PANCREAS	*	*	*	*	*	*	*	*	*	*
MANDIBULAR LYMPH NODE Hemorrhage	-	-	2	-	-	-	-	-	-	-
ZYMBAL'S GLAND	*	*	*	*	*	*	*	*	*	*
PITUITARY	*	*	*	*	*	*	*	*	*	*
ADRENALS	*	*	*	*	*	*	*	*	*	*
THYROID	*	*	*	*	*	*	*	*	*	*
PARATHYROID	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 6  
 FATES: ALL

SEX: MALE

ANIMAL ID:	6-371	6-372	6-373	6-374	6-375	6-376	6-377	6-378	6-379	6-380
TRACHEA	*	*	*	*	*	*	*	*	*	*
ESOPHAGUS	*	*	*	*	*	*	*	*	*	*
THYMUS	*	*	*	*		*	*	*	*	*
Hemorrhage	-	-	-	-	1	-	-	-	-	-
HEART	*	*	*	*	*	*	*	*	*	*
COLON	*	*	*	*	*	*	*	*	*	*
JEJUNUM	*	*	*	*	*	*	*	*	*	*
AORTA	*	*	*	*	*	*	*	*	*	*
LIVER			N	N	N			N	N	
Bile Duct Hyperplasia	-	1	-	-	-	-	1	-	-	-
Necrosis, Hepatocellular	-	-	-	-	-	1	1	-	-	1
Inflammation, Chronic/Active	-	-	-	-	-	1	1	-	-	-
Lymphocytic Infiltrates	1	-	-	-	-	-	-	-	-	-
SPLEEN				N						
Pigmentation, NOS	1	1	1	-	1	1	2	1	2	1
Hyperplasia, Erythroid Cell	1	1	-	-	-	1	2	1	1	-
Hyperplasia, Lymphoid	-	-	-	-	-	-	-	-	-	1

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004      GROUP: 6      SEX: MALE  
 DAYS: ALL      FATES: ALL

ANIMAL ID:	6-371	6-372	6-373	6-374	6-375	6-376	6-377	6-378	6-379	6-380
TONGUE	*	*	*	*	*	*	*	*	*	*
SKELETAL MUSCLE	*	*	*	*	*	*	*	*	*	*
LUNGS										
Lymphocytic Infiltrates, PB	2	1	1	2	2	1	2	1	1	2
Inflammation, Chronic	1	-	1	-	1	-	-	-	-	1
KIDNEYS										
Chronic Progress. Nephropathy	2	2	1	1	1	2	2	2	2	2
Hyaline Droplets	2	2	1	1	1	2	2	2	2	2
URINARY BLADDER	*	*	*	*	*	*	*	*	*	*
PROSTATE	*	*	*	*	*	*	*	*	*	*
STOMACH	*	*	*	*	*	*	*	*	*	*
DUODENUM	*	*	*	*	*	*	*	*	*	*
ILEUM	*	*	*	*	*	*	*	*	*	*
CECUM	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 6  
 FATES: ALL

SEX: MALE

ANIMAL ID:	6-371	6-372	6-373	6-374	6-375	6-376	6-377	6-378	6-379	6-380
RECTUM	*	*	*	*	*	*	*	*	*	*
MESENTERIC LYMPH NODE	*	*	*	*	*	*	*	*	*	*
TESTES	*	*	*	*	*	*	*	*	*	*
EPIDIDYMUS	*	*	*	*	*	*	*	*	*	*
SEMINAL VESICLES	*	*	*	*	*	*	*	*	*	*
SKIN	*	*	*	*	*	*	*	*	*	*
PREPUTIAL GLAND	*	*	*	*	*	*	*	*	*	*
EYES	*	*	*	*	*	*	*	*	*	*
HARDERIAN GLAND	*	*	*	*	*	*	*	*	*	*
FEMUR/STERNUM	*	*	*	*	*	*	*	*	*	*
NASAL	*	*	*	*	*	*	*	*	*	*
MAMMARY GLAND	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 7  
 FATES: ALL

SEX: MALE

ANIMAL ID:	7-446	7-447	7-448	7-449	7-450	7-451	7-452	7-453	7-454	7-455
BRAIN	*	*	*	*	*	*	*	*	*	*
NERVE	*	*	*	*	*	*	*	*	*	*
SPINAL CORD	*	*	*	*	*	*	*	*	*	*
SALIVARY GLAND	*	*	*	*	*	*	*	*	*	*
PANCREAS	*	*	*	*	*	*	*	*	*	*
MANDIBULAR LYMPH NODE	*	*	*	*	*	*	*	*	*	*
ZYMBAL'S GLAND	*	*	*	*	*	*	*	*	*	*
PITUITARY	*	*	*	*	*	*	*	*	*	*
ADRENALS	*	*	*	*	*	*	*	*	*	*
THYROID	*	*	*	*	*	*	*	*	*	*
PARATHYROID	*	*	*	*	*	*	*	*	*	*
TRACHEA	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
DAYS: ALL

GROUP: 7  
FATES: ALL

SEX: MALE

ANIMAL ID:	7-446	7-447	7-448	7-449	7-450	7-451	7-452	7-453	7-454	7-455
ESOPHAGUS	*	*	*	*	*	*	*	*	*	*
THYMUS	*	*	*	*	*	*	*	*	*	*
HEART	*	*	*	*	*	*	*	*	*	*
COLON	*	*	*	*	*	*	*	*	*	*
JEJUNUM	*	*	*	*	*	*	*	*	*	*
AORTA	*	*	*	*	*	*	*	*	*	*
LIVER										
Inflammation, Chronic	-	1	N	N	N	-	-	-	-	N
Bile Duct Hyperplasia	-	-	-	-	-	-	-	-	1	-
Necrosis, Hepatocellular	2	1	-	-	-	1	2	-	-	-
Inflammation, Chronic/Active	2	-	-	-	-	-	1	-	-	-
Lymphocytic Infiltrates	-	-	-	-	-	-	-	1	-	-
Inflammation, Subacute	-	-	-	-	-	1	-	-	-	-
SPLEEN	N		N					N	N	
Pigmentation, NOS	-	-	-	-	1	1	-	-	-	-
Hyperplasia, Erythroid Cell	-	-	-	-	1	1	-	-	-	-
Hyperplasia, Lymphoid	-	2	-	-	-	-	1	-	-	1
Fibrosis	-	-	-	1	-	-	-	-	-	-

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 7  
 FATES: ALL

SEX: MALE

ANIMAL ID:	7-446	7-447	7-448	7-449	7-450	7-451	7-452	7-453	7-454	7-455
TONGUE	*	*	*	*	*	*	*	*	*	*
SKELETAL MUSCLE	*	*	*	*	*	*	*	*	*	*
LUNGS										
Lymphocytic Infiltrates, PB	1	1	1	2	2	1	1	2	1	1
Inflammation, Chronic	1	1	-	2	2	1	1	1	-	-
KIDNEYS										
Chronic Progress. Nephropathy	1	1	1	2	1	1	1	1	1	2
Hyaline Droplets	-	-	-	-	-	-	1	-	-	-
URINARY BLADDER	*	*	*	*	*	*	*	*	*	*
PROSTATE	*	*	*	*	*	*	*	*	*	*
STOMACH	*	*	*	*	*	*	*	*	*	*
DUODENUM	*	*	*	*	*	*	*	*	*	*
ILEUM	*	*	*	*	*	*	*	*	*	*
CECUM	*	*	*	*	*	*	*	*	*	*

(Report Continued)



Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 7  
 FATES: ALL

SEX: MALE

ANIMAL ID:	7-446	7-447	7-448	7-449	7-450	7-451	7-452	7-453	7-454	7-455
RECTUM	*	*	*	*	*	*	*	*	*	*
MESENTERIC LYMPH NODE	*	*	*	*	*	*	*	*	*	*
TESTES	*	*	*	*	*	*	*	*	*	*
EPIDIDYMUS	*	*	*	*	*	*	*	*	*	*
SEMINAL VESICLES	*	*	*	*	*	*	*	*	*	*
SKIN	*	*	*	*	*	*	*	*	*	*
PREPUTIAL GLAND	*	*	*	*	*	*	*	*	*	*
EYES	*	*	*	*	*	*	*	*	*	*
HARDERIAN GLAND	*	*	*	*	*	*	*	*	*	*
FEMUR/STERNUM	*	*	*	*	*	*	*	*	*	*
NASAL	*	*	*	*	*	*	*	*	*	*
MAMMARY GLAND	*	*	*	*	*	*	*	*	*	*

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004 DAYS: ALL		GROUP: 8 FATES: ALL		SEX: MALE						
ANIMAL ID:	8-521	8-522	8-523	8-524	8-525	8-526	8-527	8-528	8-529	8-530
BRAIN	N	N	N	N	N	N	N	N	N	N
NERVE	N	N	N	N	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N	N	N	N	N
PANCREAS Degeneration, Acinar	N -	1	1	N -	1	N -	N -	N -	1	N -
MANDIBULAR LYMPH NODE Hemorrhage Hyperplasia, Lymphoid	N - -	N - -	1 2	N - -	N - -	N - -	N - -	N - -	N - -	N - -
ZYMBAL'S GLAND	N	N	N	N	N	N	N	N	N	N
PITUITARY Cyst, NOS, Pars Distalis	N -	N -	N -	N -	P	N -	N -	N -	N -	N -
ADRENALS	N	N	N	N	N	N	N	N	N	N
THYROID	N	N	N	N	N	N	N	N	N	N

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 8  
 FATES: ALL

SEX: MALE

ANIMAL ID:	8-521	8-522	8-523	8-524	8-525	8-526	8-527	8-528	8-529	8-530
PARATHYROID	N	N	N	N	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N	N	N	N	N
THYMUS Hemorrhage	1	N	N	1	1	3	N	1	N	N
HEART Inflammation, Chronic	N	1	N	1	1	N	1	1	N	1
COLON	N	N	N	N	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N	N	N	N	N
AORTA	N	N	N	N	N	N	N	N	N	N
LIVER	N		N	N	N		N			N
Inflammation, Chronic	-	-	-	-	-	1	-	-	-	-
Bile Duct Hyperplasia	-	-	-	-	-	-	-	1	1	-
Necrosis, Hepatocellular	-	1	-	-	-	1	-	-	-	-

(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004 DAYS: ALL		GROUP: 8 FATES: ALL		SEX: MALE						
ANIMAL ID:	8-521	8-522	8-523	8-524	8-525	8-526	8-527	8-528	8-529	8-530
SPLEEN	N		N			N				N
Pigmentation, NOS	-	1	-	1	-	-	1	-	-	-
Hyperplasia, Erythroid Cell	-	-	-	1	-	-	1	1	-	-
Hyperplasia, Lymphoid	-	-	-	-	2	-	-	1	2	-
TONGUE	N	N	N	N	N	N	N	N	N	N
SKELETAL MUSCLE	N	N	N	N	N	N	N	N	N	N
LUNGS				U						
Lymphocytic Infiltrates, PB	1	1	1	-	1	2	2	2	2	2
Inflammation, Chronic	1	-	1	-	1	-	1	1	2	2
KIDNEYS										
Chronic Progress. Nephropathy	2	1	2	1	1	2	1	1	1	2
URINARY BLADDER	N	N	N		N	N	N	N	N	N
Calculus, NOS	-	-	-	P	-	-	-	-	-	-
PROSTATE	N	N	N	N	N	N	N	N		N
Inflammation, Suppurative	-	-	-	-	-	-	-	-	1	-
STOMACH	N	N	N	N	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N	N	N	N	N

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 8  
 FATES: ALL

SEX: MALE

ANIMAL ID:	8-521	8-522	8-523	8-524	8-525	8-526	8-527	8-528	8-529	8-530
ILEUM	N	N	N	N	N	N	N	N	N	N
CECUM	N	N	N	N	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N	N	N	N	N	N	N
TESTES	N	N	N	N	N	N	N	N	N	N
EPIDIDYMUS	N	N	N	N	N	N	N	N	N	N
SEMINAL VESICLES	N	N	N	N	N	N	N	N	N	N
SKIN	N	N	N	N	N	N	N	N	N	N
PREPUTIAL GLAND			N		N			N	N	
Lymphocytic Infiltrates	-	1	-	-	-	2	-	-	-	-
Inflammation, Suppurative	3	2	-	-	-	1	-	-	-	-
Inflammation, Chronic	-	-	-	2	-	-	3	-	-	2
EYES		N		N		N		N	N	
Microgranuloma	1	-	2	-	1	-	1	-	-	1

(Report Continued)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity of 1,3,5 - Trinitrobenzene  
 Six Month Interim Sacrifice

Tabulated Animal Data

PROJECT ID: 93-004  
 DAYS: ALL

GROUP: 8  
 FATES: ALL

SEX: MALE

ANIMAL ID:	8-521	8-522	8-523	8-524	8-525	8-526	8-527	8-528	8-529	8-530
HARDERIAN GLAND	N	N	N	N	N	N	N	N	N	N
FEMUR/STERNUM	N	N	N	N	N	N	N	N	N	N
NASAL		N		N	N	N	N	N	N	N
Inflammation, Suppurative	2	-	2	-	-	-	-	-	-	-
Squamous Metaplasia	2	-	2	-	-	-	-	-	-	-
MAMMARY GLAND	N	N	N	N	N	N	N	N	N	N

(End of Report)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

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PROJECT ID: 930046      GROUP: 1      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 1-011      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 1-012  
ANIMAL FATE: Terminal Sacrifice

PATHOLOGIST: GRO

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 1-013  
ANIMAL FATE: Terminal Sacrifice

PATHOLOGIST: GRO

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 1-014  
ANIMAL FATE: Terminal Sacrifice

PATHOLOGIST: GRO

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

---

PROJECT ID: 930046      GROUP: 1      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 1-015      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 1-016      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 1-017      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 1-018      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

---

PROJECT ID: 930046      GROUP: 1      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 1-019      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 1-020      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

---

PROJECT ID: 930046      GROUP: 2      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 2-086      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice  
DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 2-087      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice  
DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 2-088      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice  
DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 2-089      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice  
DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:  
>Uterus - Bilateral, Dialated,      UTERUS- Dilatation, Bilateral  
Moderate

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

---

PROJECT ID: 930046      GROUP: 2      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 2-090      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 2-091      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 2-092      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 2-093      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

---

PROJECT ID: 930046      GROUP: 2      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 2-094      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 2-095      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

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PROJECT ID: 930046      GROUP: 3      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 3-161      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 3-162      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 3-163      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 3-164      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

---

PROJECT ID: 930046      GROUP: 3      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 3-165      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 3-166      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 3-167      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 3-168      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

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PROJECT ID: 930046      GROUP: 3      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 3-169      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 3-170      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

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PROJECT ID: 930046      GROUP: 4      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 4-236      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 4-237      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 4-238      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 4-239      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

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PROJECT ID: 930046      GROUP: 4      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 4-240      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 4-241      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 4-242      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 4-243      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

---

PROJECT ID: 930046      GROUP: 4      SEX: FEMALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 4-244      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:  
>Ovary - Left, Cyst, 12x6mm      OVARIES- Cyst, NOS

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ANIMAL ID: 4-245      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

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PROJECT ID: 93-004      GROUP: 5      SEX: MALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 5-296      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 5-297      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 5-298      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 5-299      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

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PROJECT ID: 93-004      GROUP: 5      SEX: MALE  
DAYS: ALL      FATES: ALL

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ANIMAL ID: 5-300      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 5-301      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 5-302      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:  
>Testis - Right, Decreased in size,      TESTES- Degeneration, Seminif.  
17x9x9mm      Tubular

---

ANIMAL ID: 5-303      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

---

PROJECT ID: 93-004      GROUP: 5      SEX: MALE  
DAYS: ALL      FATES: ALL

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ANIMAL ID: 5-304      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 5-305      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

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PROJECT ID: 93-004      GROUP: 6      SEX: MALE  
DAYS: ALL      FATES: ALL

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ANIMAL ID: 6-371      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 6-372      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 6-373      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:  
>Mandibular Lymph Node - Foci,      MANDIBULAR LYMPH NODE- Hemorrhage  
Pinpoint (>5), Discolored, Red

---

ANIMAL ID: 6-374      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

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PROJECT ID: 93-004      GROUP: 6      SEX: MALE  
DAYS: ALL      FATES: ALL

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ANIMAL ID: 6-375      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:  
>Thymus - Foci, 1mm to 2mm, (>5), red      THYMUS- Hemorrhage

---

ANIMAL ID: 6-376      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 6-377      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 6-378      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

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PROJECT ID: 93-004      GROUP: 6      SEX: MALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 6-379      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice  
DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 6-380      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice  
DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

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PROJECT ID: 93-004      GROUP: 7      SEX: MALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 7-446      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 7-447      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 7-448      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 7-449      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

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PROJECT ID: 93-004      GROUP: 7      SEX: MALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 7-450      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 7-451      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 7-452      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 7-453      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

---

PROJECT ID: 93-004      GROUP: 7      SEX: MALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 7-454      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice  
DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 7-455      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice  
DAYS ON TEST: 182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

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PROJECT ID: 93-004      GROUP: 8      SEX: MALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 8-521      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 8-522  
ANIMAL FATE: Terminal Sacrifice

PATHOLOGIST: GRO

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

---

ANIMAL ID: 8-523  
ANIMAL FATE: Terminal Sacrifice

PATHOLOGIST: GRO

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 8-524  
ANIMAL FATE: Terminal Sacrifice

PATHOLOGIST: GRO

DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

---

Correlation of Gross & Micro Findings

---

PROJECT ID: 93-004      GROUP: 8      SEX: MALE  
DAYS: ALL      FATES: ALL

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ANIMAL ID: 8-525      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 8-526      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 8-527      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 8-528      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(Report Continued)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity of 1,3,5 - Trinitrobenzene  
Six Month Interim Sacrifice

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Correlation of Gross & Micro Findings

---

PROJECT ID: 93-004      GROUP: 8      SEX: MALE  
DAYS: ALL      FATES: ALL

---

ANIMAL ID: 8-529      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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ANIMAL ID: 8-530      PATHOLOGIST: GRO  
ANIMAL FATE: Terminal Sacrifice      DAYS ON TEST:182

REFERENCE TO NECROPSY RECORD:      RELATED HISTOPATHOLOGY:

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(End of Report)

FOOD AND WATER  
CONSUMPTION

Food Consumption  
(g/wk)  
Females

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	26.59±0.59	30.43±0.90	32.14±0.64	33.87±0.61
2	72.85±1.34	76.84±1.37	76.25±1.31	83.87±1.89
3	74.94±1.67	78.80±2.04	77.56±2.43	85.64±2.72
4	78.97±2.72	83.90±2.01	84.55±3.64	82.46±5.16
5	76.34±1.31	80.14±2.37	84.63±1.76	98.67±15.45
6	73.38±2.29	78.71±1.67	78.72±2.26	82.78±0.92
7	80.79±1.94	94.01±2.29	94.88±2.06	96.97±1.60
8	62.36±1.25	67.73±1.57	68.46±1.30	74.11±2.11
9	76.03±1.33	83.08±1.81	85.81±4.13	89.47±3.21
10	74.73±1.29	85.47±1.99	88.81±1.41	96.32±2.18
11	84.55±2.03	144.78±47.68	97.62±1.91	104.23±2.72
12	59.03±2.55	68.92±2.58	68.61±1.93	73.68±2.03
14 *	32.53±0.53	34.52±0.87	36.47±0.55	35.85±1.48
15	70.51±1.61	78.65±2.08	82.70±1.61	84.58±1.37
16	73.81±1.50	78.87±1.82	81.38±1.09	85.34±2.07
17	68.95±1.74	79.99±1.59	80.21±1.59	85.33±1.77
18	74.06±1.46	83.43±2.04	87.39±1.51	91.35±1.61
19	69.26±1.31	81.04±1.53	80.64±1.25	88.67±2.20
20	71.43±1.63	76.86±1.72	82.33±1.52	84.93±2.43
21	88.70±1.43	93.91±1.69	97.40±1.90	104.57±2.11
22	64.92±1.18	66.84±2.36	69.63±1.62	73.64±1.55
23	71.81±1.53	75.77±1.70	79.76±2.51	88.32±3.87
24	77.97±2.47	78.99±1.76	86.79±2.24	92.70±2.54
25	75.21±2.15	82.38±2.78	88.93±1.66	96.53±1.90
26	85.88±2.69	99.25±1.99	102.21±1.62	106.62±2.43
27 *	32.17±1.32	37.98±1.09	37.75±0.82	40.02±0.88

Mean ±Standard Error

\* Data from 3 days



Food Consumption  
(g/wk)  
Males

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	42.51±0.90	49.48±0.77	51.75±0.85	47.21±0.64
2 **	168.61±6.05	169.44±4.07	182.18±8.47	146.81±8.77
3	108.70±2.25	118.86±1.51	119.49±2.15	116.92±2.79
4	112.21±2.50	120.68±1.46	123.25±2.87	119.23±3.55
5	113.47±1.97	117.21±2.89	124.54±2.52	119.16±2.63
6 *	49.67±5.90	62.69±4.48	55.44±8.31	88.29±11.30
7	107.64±2.39	113.64±2.08	118.69±2.58	117.02±1.88
8	103.76±2.44	106.63±2.78	115.07±3.29	113.01±2.49
9	109.90±1.58	109.34±2.53	116.97±2.05	114.04±3.66
10	106.53±6.64	114.74±2.79	117.35±2.11	121.38±2.96
11	104.79±2.87	114.53±3.76	121.79±2.64	114.14±3.14
12	101.68±2.48	102.28±4.70	108.72±1.84	112.14±2.77
14 *	50.33±1.28	50.59±1.27	53.54±2.09	51.44±1.66
15	108.61±2.21	112.32±2.89	115.47±1.98	116.98±2.29
16	107.12±1.85	69.39±27.07	104.82±10.35	115.47±2.77
17	90.64±1.25	94.84±2.17	103.46±1.54	105.50±2.33
18	111.59±1.63	119.16±3.04	124.30±2.31	128.46±3.20
19	119.25±2.51	129.69±4.10	131.84±2.31	141.45±4.09
20	108.03±2.89	110.33±3.84	120.38±2.68	123.48±3.47
21	112.49±1.53	122.98±3.36	121.95±2.22	132.48±3.87
22	103.93±2.48	109.92±3.94	118.70±2.28	120.57±3.16
23	106.93±2.26	114.36±2.96	117.11±2.08	118.49±4.46
24	114.36±1.67	125.21±3.26	124.92±2.79	126.68±3.96
25	112.61±1.98	120.58±3.12	125.47±2.86	128.00±3.91
26	114.93±1.86	119.34±3.55	126.75±2.52	125.29±3.45
27 *	65.17±1.07	70.02±1.85	73.12±1.31	71.95±2.32

Mean ±Standard Error

\* Data from 3 days; \*\*Data from 11 days

Water Consumption  
(g/wk)  
Females

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	40.78±1.04	43.32±1.63	42.36±1.46	47.82±2.48
2	118.68±4.82	110.26±2.63	110.82±2.53	117.53±3.86
3	116.00±3.26	115.35±3.82	114.18±3.67	117.95±3.89
4	131.65±8.03	118.57±3.62	121.39±3.34	112.35±8.71
5	126.33±6.35	115.15±2.90	119.19±2.38	89.66±29.23
6	121.28±3.11	115.85±2.98	119.47±2.91	118.77±3.79
7	159.41±14.70	140.52±3.65	143.38±3.09	139.81±4.45
8	105.59±3.98	100.60±3.04	102.75±2.18	101.28±2.67
9	137.62±8.21	123.28±3.59	126.77±3.22	127.37±3.73
10	129.78±6.76	127.18±4.82	130.74±3.55	131.17±3.69
11	144.55±5.96	112.16±10.32	139.60±4.14	142.35±5.37
12	110.92±7.51	100.14±2.99	101.11±2.85	104.86±3.66
14	130.49±4.44	128.56±6.21	126.02±3.38	124.08±3.94
15	127.82±4.38	128.57±4.26	128.41±3.09	131.10±4.08
16	144.26±10.77	131.09±4.19	127.24±3.66	127.80±4.36
17	133.33±5.30	137.04±5.30	136.70±3.51	135.44±4.60
18	137.16±5.10	138.12±4.09	133.07±2.71	138.03±4.42
19	136.23±13.66	119.89±4.63	122.65±2.91	127.96±4.67
20	157.19±6.16	155.49±4.57	150.38±3.77	150.90±3.53
21	124.52±3.99	119.38±3.82	118.68±2.85	121.45±3.37
22	142.17±12.89	128.99±3.89	123.96±3.38	131.28±3.91
23	137.25±4.28	134.29±4.90	132.36±3.37	127.79±3.30
24	142.30±3.88	138.51±4.40	136.06±4.20	143.82±3.93
25	175.00±11.43	162.17±3.68	163.03±3.19	169.00±4.59
26	129.49±3.51	129.32±4.74	132.18±2.67	127.01±4.59

Mean ±Standard Error

\*Data from 3 days

Water Consumption  
(g/wk)  
Males

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	63.22±6.36	62.83±1.36	63.96±1.58	60.17±1.27
2 **	235.13±9.40	203.97±3.04	232.27±7.34	252.73±5.05
3	156.17±9.61	151.72±2.22	150.14±4.73	141.84±3.88
4	158.46±8.36	156.69±2.90	148.16±4.30	141.38±4.02
5	153.06±2.63	151.44±3.50	144.13±4.87	143.90±3.13
6	***	***	***	***
7	152.46±3.50	154.08±2.39	149.00±2.77	144.29±3.00
8	157.25±7.44	147.70±2.74	142.07±2.43	133.09±3.84
9	162.09±4.60	154.10±3.24	141.41±2.72	143.33±3.02
10	158.93±3.62	154.86±4.55	149.91±2.89	143.23±3.49
11	158.89±6.05	152.31±4.29	145.13±3.62	140.98±3.89
12	148.77±4.78	136.73±4.95	133.63±2.35	131.28±4.25
14	174.46±9.77	155.96±3.90	143.97±2.84	140.64±3.13
15	152.44±3.97	151.71±3.66	143.12±2.95	142.10±3.95
16	156.87±4.43	155.81±4.33	144.50±2.76	148.96±3.68
17	180.11±9.69	162.77±3.69	151.24±3.10	154.54±4.41
18	162.00±4.04	157.13±6.39	147.97±2.74	151.10±4.59
19	150.39±4.56	143.63±4.89	136.86±2.26	142.27±4.30
20	202.92±12.73	183.36±4.55	169.56±2.95	172.54±4.44
21	144.63±3.66	142.15±6.38	128.17±3.54	133.76±4.09
22	151.77±4.29	149.36±3.87	136.26±1.52	133.00±4.64
23	183.16±11.91	161.47±3.86	148.10±2.17	144.46±2.93
24	168.42±3.72	168.87±4.37	152.09±3.18	151.89±3.80
25	197.48±5.56	187.34±5.87	171.21±3.54	174.77±4.69
26	165.64±7.90	147.34±4.52	134.72±2.64	132.95±4.25

Mean ±Standard Error

\*Data from 3 days; \*\*Data from 11 days; \*\*\*Data unavailable

## APPENDIX L

INTERIM SACRIFICE - 1 YEAR

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
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### **Study Timetable:**

Study Initiation: August 17, 1993

Initiation of Dosing: August 30, 1993

Interim Necropsy: August 31 and September 1, 1994

## INTRODUCTION

Nitroaromatics, such as 1,3-dinitrobenzene (DNB), 1,3,5-trinitrobenzene (TNB), and N-methyl-N,2,4,6-tetranitroaniline (tetryl), have been detected as environmental contaminants of groundwater and soil near production sites and in some instances at military test grounds. TNB is formed as a by-product during 2,4,6-trinitrotoluene (TNT) production and can be formed through photochemical oxidative degradation of 2,4-dinitrotoluene a by-product released into the environment from TNT manufacturing (Burlinson, 1980; Spanggord et.al., 1982). TNB is not easily biodegradable, persists in the environment, eventually leaches out, and contaminates groundwater near waste disposal sites (Garman et.al., 1987). Exposure to TNB can occur through contact with wastewaters and soil at the original production sites and other plants devoted to munitions assembly which contain large quantities of these nitroaromatic compounds (Walsh and Jenkins, 1992).

Toxicity data on these compounds are limited. The oral LD<sub>50</sub> of DNB, TNB and tetryl were 59 mg/kg, 284 mg/kg and greater than 5 g/kg, respectively, in rats for combined sexes. TNB and tetryl were not toxic at 2 g/kg when applied to rabbit skin for 24 hours. However, the dermal LD<sub>50</sub> of DNB was 1.99 g/kg for combined sexes of rabbits. None of these compounds produced skin irritation but positive (DNB) and severe (TNB, tetryl) eye irritation potentials in rabbits were noted. The sensitization tests showed that DNB and tetryl are not skin sensitizers while TNB caused mild allergic reaction in guinea pigs (Fitzgerald et. al., 1992 a,b,c). Some of the toxicological effects of TNB are: formation of methemoglobin, testicular degeneration and reproductive failure, weight loss and anemia in hamsters, rats and mice. Neurological and hematological disorders have also been reported in dogs. DNB is toxic to humans; the estimated lethal dose range is 5-50 mg/kg and is readily absorbed through the skin (Von Burg, 1989). Tetryl was observed to be a powerful skin sensitizer in ammunition plant workers with dermatitis, liver atrophy, spleen effects, headaches, weight loss and respiratory irritation reported following exposure (U.S. EPA, 1990). Atmospheric concentration of 1.5 mg/m<sup>3</sup> or below did not produce systemic poisoning in persons working with tetryl. DNB, TNB and tetryl have been shown to be genotoxic in the Salmonella mutagenesis assay (McGregor et. al., 1989) while TNB and DNB have been shown to form adducts of blood proteins and tissue DNA in rats (Reddy et. al.; 1991, 1995).

### Objective of the Study

This study was conducted in order to evaluate the toxicity of 1,3,5-trinitrobenzene when administered in the diet for a two year period.

## MATERIALS AND METHODS

### Test Material Preparation

1,3,5-Trinitrobenzene powder (CAS #99-35-4) was supplied by the U.S. Army Biomedical Research and Development Laboratory. Analysis by HPLC revealed no detectable impurities. Certified powdered Purina Laboratory Chow 5002 was purchased (Ralston-Purina Co., St. Louis, MO) and stored at 4°C until used. First, 0.3 g of TNB was added to 50 g of powdered diet in a mortar and thoroughly ground with a pestle. Afterwards 250 g of the diet was added and mixed for 15 minutes followed by 350 g and mixed for an additional 15 minutes. Finally, the remaining diet (350 g) was added and mixed for 30 minutes in a mechanical mixer (Kitchen Aid, St. Joseph, MI) for uniform distribution of TNB in the diet. This was verified by determining the TNB concentration in the diet, taken from each of the 1 kg mixtures, by quantitative analysis done by HPLC. The premixed diet (0.3 g/kg) was further diluted with fresh powdered diet to obtain the desired TNB concentration in the lower dose groups. The diet feeders were changed twice a week.

Analyses of the TNB-feed mixtures were carried out on acetone extracts of the mixtures, utilizing a Waters 600E chromatography system (Waters, Milford, MA), equipped with a 490E programmable multiwavelength detector, operating at 245 nm. The entire chromatography system was interfaced with a Berthold HPLC computer program, Version 1.65 (Berthold, Nashua, NH). The TNB was eluted from a Zorbax C-8 column (9.4 mm x 25 cm) (MAC-DOD Analytical, Chadds Ford, PA) with a water-methanol gradient, at a flow rate of 3 ml/min. Working standards were prepared in Burdick and Jackson HPLC grade high purity methanol (Baxter, Obetz, OH).

### Animals and Maintenance

Male and female Fischer 344 rats, confirmed free of viral antibodies, bacteria and parasites, were obtained from Charles River Laboratories, Kingston, New York. The animals, 7-8 weeks old and weighing approximately 140-175 g when delivered, were held for 1 week in quarantine prior to initiation of treatment. The animals were housed in a temperature (22-23°C) and humidity (40-60%) controlled room on a 12:12 hour light:dark cycle. For the study, they were housed individually in polycarbonate cages and water was administered ad libitum. Animal identification was done using electronic implants (Bio Medic, Maywood, NJ) with the rats assigned to control and treatment groups according to a computer-generated set of random numbers. The weight variation of the animals of each sex used did not exceed  $\pm 2$  s.d. of the mean weight at the time of delivery. The cages were identified with a color-coded identification card indicating the animal and treatment group. All aspects of the study were conducted in compliance with the guidelines of the American Association for Accreditation of Laboratory Animal Care.

All rats were observed daily for physiological and behavioral responses as well as for mortality or morbidity. Food and water consumption were recorded twice weekly. Body weights were taken prior to the start of the study, once weekly during the study and at the final sacrifice.



### Experiment Groups

Group	Interim Sac. No. of Animals	Sex	mg TNB/kg diet
1	10	F	300
2	10	F	60
3	10	F	5
4	10	F	0
5	10	M	300
6	10	M	60
7	10	M	5
8	10	M	0

### Hematology and Clinical Chemistry

Hematology parameters were assessed using a Serono-Baker Hematology Analyzer, Model 9000 (Serono-Baker, Allentown, PA). Total red and white blood cell counts, platelet count, differential leukocyte count, hemoglobin, packed cell volume, reticulocytes, MCV, MCH, MCHC and Heinz bodies were measured and computed. Methemoglobin samples were analyzed on a IL 482 Co-Oximeter.

Clinical chemistry was performed using a COBAS Fara II centrifugal analyzer (Roche, Nutley, NJ) with a non-selective electrode module. Clinical chemistry analytes included sodium, potassium, total protein, albumin, calcium, phosphorus, total bilirubin, blood urea nitrogen, creatinine, alanine aminotransferase, triglycerides, cholesterol, aspartate aminotransferase, glucose and alkaline phosphatase.

### Statistical Evaluation

Males and females were considered separately in all statistical analyses. A one-factor (dose) analysis of variance (ANOVA) was used to analyze normally distributed measures: body weights, organ weights, organ weight ratios, food and water consumption, hematology and clinical chemistry. When a treatment effect was noted ( $p \leq 0.05$ , F-test) the difference between the control and the treatment groups was probed using a multiple comparison procedure (Dunnett's or Tukey's test). Due to the high variability of some of the measures, a nonparametric analysis of variance, the Wilcoxon Rank Sum Test, was used where appropriate.

### Necropsy and Histopathology

Prior to necropsy, the animals were anesthetized with pentobarbital (60 mg/kg b.w., i. p.) and blood samples were collected via cardiac puncture after the body weight was recorded. Following euthanasia via exsanguination, all external surfaces, orifices, all organs, and the thoracic, abdominal and pelvic cavities were examined for gross lesions.

During necropsy the following tissues were weighed: brain, liver, spleen, kidneys, adrenals, lungs, thymus, testes w/epididymides, ovaries, and heart.

The following tissues were harvested from each animal and preserved in 10% neutral buffered formalin:

skin	colon
mandibular and	cecum
mesenteric lymph nodes	rectum
mammary glands	liver
thigh muscle	pancreas
sciatic nerve	spleen
sternum	kidneys
femur with marrow	adrenals
thymus	urinary bladder
trachea	seminal vesicles
lungs with bronchi	prostate
heart and aorta	testes, including epididymides
thyroid	ovaries
parathyroids	uterus
esophagus	nasal cavity with turbinates
stomach	brain
duodenum	pituitary
jejunum	preputial or clitoral glands
tongue	Zymbal's gland
salivary gland	spinal cord
ileum	

Subsequently, these tissues were trimmed, processed and embedded in paraffin. Blocks were sectioned at 5 $\mu$  and slides were prepared and stained with hematoxylin and eosin. All tissues were examined in the high dose and control groups of both sexes. The spleen, kidneys, lungs and liver were examined in the remaining groups.

Inflammatory and degenerative lesions were graded according to severity using a scale of one to four (minimal, mild, moderate or marked). Data were tabulated according to individual animal and summarized by group. In addition, the gross observations and microscopic diagnoses were correlated for each animal. Labcat histopathology software was used for data management.

## **RESULTS**

### **Food and Water Consumption**

Overall food and water consumption data are listed in Table 1. The food consumption data shows no significant differences amongst the groups. Water consumption was significantly increased ( $p \leq 0.05$ ) in the 300 mg/kg group of both sexes.

Using the food consumption data, the average daily dose levels of TNB received by group is presented in Table 2.

### **Body Weights, Organ Weights and Weight Ratios**

Organ weights (heart, brain, spleen, adrenals, thymus, ovaries/testes, kidneys, lungs and liver) are given in Tables 3 (females) and 4 (males). Mean group values for organ to body weight ratios are present in Tables 5 (females) and 6 (males).

Significant decreases ( $p \leq 0.05$ ) from control terminal body weights were noted in both sexes in the 300 mg/kg group only.

Absolute organ weights were significantly ( $p \leq 0.05$ ) different from controls for the following:

- Kidneys - The 300 mg/kg female group was decreased.
- Spleen - The 60 mg/kg male group was increased.
- Thymus - The 300 mg/kg male group was decreased.
- Adrenals - The 60 mg/kg female group was increased.

Organ weights as a percent of the total body weight were significantly ( $p \leq 0.05$ ) different from controls for the following organs:

- Thymus - The 300 mg/kg male dose group had a decreased value.
- Lungs - The 300 mg/kg female dose group had an increased value.
- Brain - The 300 mg/kg dose group had an increased value in both sexes.
- Spleen - The 300 mg/kg group of both sexes had an increased value along with the 60 mg/kg male group.
- Liver - The 300 mg/kg group of both sexes had an increased value along with the 60 mg/kg male group.
- Heart - The 300 mg/kg dose group of both sexes had an increased value.
- Kidneys - The 300 mg/kg male dose group had an increased value.
- Adrenals - The 60 mg/kg female dose group had an increased value.

### **Hematology**

Hematology analyses performed were total white blood cell count (WBC), platelet count, red blood cell count (RBC), methemoglobin (MetHb), hemoglobin, hematocrit, reticulocytes, Heinz bodies, MCV, MCH, MCHC, and differential leukocyte

count. Group data are summarized in Tables 7 and 8. There were no significant ( $p \leq 0.05$ ) differences between the control group and treated groups except for the following:

- 1) WBC and Differential: An increase in the white blood cell count in the 300 mg/kg group of both sexes.
- 2) RBC: A decrease in total red cell count in the 300 mg/kg female group.
- 3) Hemoglobin: A decrease in the 300 mg/kg group of both sexes.
- 4) Hematocrit: A decrease in the 300 mg/kg group of both sexes.
- 5) Platelets: An increase in both sexes in the 300 mg/kg group.
- 6) Reticulocytes: An increase in reticulocytes in the female 300 mg/kg dose group.
- 7) Methemoglobin: An increase in both sexes in the 300 mg/kg dose group and in the 60 mg/kg female dose group.
- 8) MCV: A decrease in the 60 and 300 mg/kg male groups.
- 9) MCH: A decrease in the 60 and 300 mg/kg dose groups of both sexes.
- 10) MCHC: A decrease in the 300 mg/kg dose group of both sexes.

#### Clinical Chemistry

The following analytes were evaluated: glucose, blood urea nitrogen (BUN), creatinine, alkaline phosphatase (ALK phos), total protein, albumin, calcium, total bilirubin, aspartate aminotransferase (AST), alanine aminotransferase (ALT), sodium, potassium, phosphorus, cholesterol and triglycerides. The mean group values for each analyte are compiled in Tables 9 - 10. There were no significant ( $p \leq 0.05$ ) differences between the control group and treated groups except for the following:

- 1) Total Protein: An increase in the 300 mg/kg dose group of both sexes.
- 2) Albumin: An increase in the male 300 mg/kg dose group.
- 3) Blood Urea Nitrogen: The 300 mg/kg dose group of both sexes was increased.
- 4) Creatinine: An increase in the female 300 mg/kg dose group.
- 5) Alanine Aminotransferase: A decrease in the male 300 mg/kg dose group.

6) Alkaline Phosphatase: A decrease in the male 300 mg/kg dose group.

7) Cholesterol: An increase in the female 300 mg/kg dose group.

### Clinical Observations

There were no treatment related clinical observations.

### Survival

There have been three early deaths up to the one year sacrifice date with groups 5, 7 and 8 each having one apiece.

### Gross Pathology

A mild sporadic decrease in testicular size in the 300 mg/kg dose group was the only apparent treatment related observation.

### Histopathology

All tissues were histopathologically examined in control and high dose animals of both sexes while the spleen, liver, lungs and kidneys were examined in the remainder of the groups.

The kidneys of both sexes in the 60 and 300 mg/kg groups exhibited an increased incidence of cortical tubular cytoplasmic/hyaline droplet deposition. These droplets were morphologically similar to the droplets noted at earlier sacrifice times except for the diminished intensity of eosinophilic staining and being noted in females as well as males.

The spleen featured minimal to mild erythroid cell hyperplasia and/or increased pigment (hemosiderin) deposition. These changes were evident in the 60 and 300 mg/kg groups. This same compensatory change (regenerative anemia) can be noted in multiple organs but only the spleen was examined in all the animals.

The testes were characterized in sixty percent of high dose males and twenty percent of controls by seminiferous tubular degeneration. The affected tubules were lined by fewer spermatogenic cells and contained a reduced number of mature spermatides. The diameter of the affected tubules was decreased with the interstitium being more condensed and prominent.

The remaining diagnoses as listed in the tables should be considered spontaneous for one year old F344 rats.

## **CONCLUSIONS**

Administration of 1,3,5-trinitrobenzene in the duct to Fischer 344 rats at various doses for one year resulted in the following biologically significant findings:

1. Terminal body weights were reduced in both sexes in the 300 mg/kg group.
2. The brain, spleen, liver and heart relative organ weights were increased in the 300 mg/kg group of both sexes while the kidneys were elevated in males only in this same group.
3. Spleen and liver relative organ weights were increased in the male 60 mg/kg group while the adrenals were increased in females.
4. Hemoglobin and hematocrit levels were decreased in both sexes in the 300 mg/kg dose group while methemoglobin was increased in this same group and the 60 mg/kg male group.
5. Increased splenic erythroid cell hyperplasia and/or pigment deposition were noted in both sexes in the 60 and 300 mg/kg groups.
6. Seminiferous tubular degeneration was evident in the 300 mg/kg male group.
7. Cortical renal cytoplasmic/hyaline droplet deposition was increased in the 60 and 300 mg/kg groups of both sexes.

Table 1: Food and Water Consumption

Dose Groups (mg TNB/kg diet)	Food	Water
	(g/kg b.w./day)	
	Females	
300	50.15 ± 2.08	107.53 ± 2.70*
60	48.31 ± 1.63	97.24 ± 3.75
5	48.10 ± 1.34	88.80 ± 1.80
0	50.18 ± 1.29	88.79 ± 1.46
	Males	
300	49.18 ± 0.61	78.15 ± 1.22*
60	48.70 ± 0.32	69.06 ± 0.91
5	48.85 ± 0.51	66.44 ± 1.07
0	49.98 ± 0.34	66.39 ± 1.44

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Tukey's test.

Table 2: Daily Consumption of 1,3,5-Trinitrobenzene

Dose Groups (mg TNB/kg diet)	Calculated Dose (mg TNB/kg b.w.)	
	Females	Males
300	14.90 ± 0.62	14.61 ± 0.18
60	2.93 ± 0.10	2.96 ± 0.02
5	0.24 ± 0.01	0.25 ± 0.00
0	0.0 ± 0.0	0.0 ± 0.0

Mean ± Standard Error

Table 3: Organ Weights (grams) /Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Kidneys	1.40 ± 0.03*	1.60 ± 0.04	1.60 ± 0.03	1.60 ± 0.03
Lungs	1.19 ± 0.05	1.26 ± 0.05	1.32 ± 0.08	1.23 ± 0.06
Liver	5.81 ± 0.15	6.14 ± 0.18	6.26 ± 0.14	6.12 ± 0.11
Heart	0.74 ± 0.02	0.79 ± 0.03	0.80 ± 0.03	0.81 ± 0.02
Brain	1.72 ± 0.05	1.81 ± 0.05	1.84 ± 0.02	1.81 ± 0.03
Spleen	0.57 ± 0.02	0.53 ± 0.01	0.52 ± 0.03	0.51 ± 0.01
Adrenals	0.06 ± 0.00	0.08 ± 0.00	0.08 ± 0.00	0.07 ± 0.00
Thymus	0.13 ± 0.01	0.17 ± 0.01	0.19 ± 0.02	0.17 ± 0.01
Gonads	0.18 ± 0.04	0.14 ± 0.01	0.16 ± 0.02	0.15 ± 0.01

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.



Table 4: Organ Weights (grams)/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Kidneys	2.69 ± 0.08	3.00 ± 0.07	2.97 ± 0.05	2.81 ± 0.07
Lungs	1.75 ± 0.08	1.94 ± 0.06	1.93 ± 0.07	1.87 ± 0.07
Liver	10.76 ± 0.30	11.97 ± 0.25	11.90 ± 0.17	11.04 ± 0.34
Heart	1.18 ± 0.04	1.26 ± 0.03	1.30 ± 0.03	1.22 ± 0.02
Brain	1.94 ± 0.02	2.02 ± 0.02	1.99 ± 0.02	1.95 ± 0.04
Spleen	0.82 ± 0.02	0.84 ± 0.02*	0.83 ± 0.02	0.76 ± 0.02
Adrenals	0.07 ± 0.01	0.08 ± 0.01	0.07 ± 0.00	0.07 ± 0.01
Thymus	0.17 ± 0.02*	0.30 ± 0.03	0.30 ± 0.03	0.29 ± 0.03
Gonads	4.52 ± 0.56	6.25 ± 0.41	6.17 ± 0.42	5.33 ± 0.35

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 5: Organ-to-Body Weight Ratios/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Body Weight (grams)	183.03 ± 5.00*	214.03 ± 5.56	223.81 ± 6.28	222.78 ± 4.15
Kidneys (%)	0.77 ± 0.02	0.75 ± 0.01	0.72 ± 0.01	0.72 ± 0.01
Lungs (%)	0.65 ± 0.02*	0.59 ± 0.03	0.59 ± 0.03	0.55 ± 0.03
Liver (%)	3.19 ± 0.11*	2.87 ± 0.03	2.80 ± 0.04	2.75 ± 0.03
Heart (%)	0.41 ± 0.01*	0.37 ± 0.01	0.36 ± 0.01	0.36 ± 0.01
Brain (%)	0.95 ± 0.04*	0.85 ± 0.02	0.83 ± 0.02	0.82 ± 0.02
Spleen (%)	0.31 ± 0.01*	0.25 ± 0.00	0.23 ± 0.01	0.23 ± 0.01
Adrenals (%)	0.03 ± 0.00	0.04 ± 0.00*	0.03 ± 0.00	0.03 ± 0.00
Thymus (%)	0.07 ± 0.00	0.08 ± 0.00	0.09 ± 0.01	0.08 ± 0.00
Gonads (%)	0.10 ± 0.02	0.07 ± 0.00	0.07 ± 0.01	0.07 ± 0.01

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 6: Organ-to-Body Weight Ratios/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Body Weight (grams)	353.25 ± 5.99*	409.41 ± 7.16	422.14 ± 5.49	401.36 ± 5.38
Kidneys (%)	0.76 ± 0.01*	0.73 ± 0.01	0.70 ± 0.01	0.70 ± 0.01
Lungs (%)	0.49 ± 0.02	0.47 ± 0.02	0.46 ± 0.02	0.47 ± 0.02
Liver (%)	3.04 ± 0.06*	2.92 ± 0.03*	2.82 ± 0.04	2.75 ± 0.06
Heart (%)	0.33 ± 0.01*	0.31 ± 0.01	0.31 ± 0.01	0.30 ± 0.01
Brain (%)	0.55 ± 0.01*	0.49 ± 0.01	0.47 ± 0.00	0.49 ± 0.01
Spleen (%)	0.23 ± 0.00*	0.21 ± 0.00*	0.20 ± 0.00	0.19 ± 0.01
Adrenals (%)	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00	0.02 ± 0.00
Thymus (%)	0.05 ± 0.00*	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01
Gonads (%)	1.27 ± 0.15	1.54 ± 0.12	1.47 ± 0.11	1.33 ± 0.09

Mean ± Standard Error

\* Significantly different from the control group ( $p \leq 0.05$ ) by Dunnett's test.

Table 7: Hematology Values/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
RBC ( $\times 10^6/\mu\text{l}$ )	7.74 * $\pm 0.23$	8.22 $\pm 0.20$	8.03 * $\pm 0.20$	8.18 $\pm 0.27$
Hemoglobin (g/dl)	14.15 * $\pm 0.45$	15.28 $\pm 0.23$	15.28 $\pm 0.45$	15.49 $\pm 0.37$
Hematocrit (%)	40.66 * $\pm 1.01$	43.07 $\pm 0.86$	42.60 $\pm 0.97$	43.39 $\pm 1.62$
WBC ( $\times 10^3/\mu\text{l}$ )	3.01 * $\pm 0.40$	2.59 $\pm 0.56$	2.15 $\pm 0.61$	2.14 $\pm 0.11$
Platelets ( $\times 10^3/\mu\text{l}$ )	774.67 * $\pm 47.14$	666.70 $\pm 57.54$	624.80 $\pm 82.69$	628.10 $\pm 53.35$
Segmented Leukocytes (%)	26.63 $\pm 4.90$	30.56 $\pm 6.68$	28.77 $\pm 7.23$	28.81 $\pm 8.17$
Lymphocytes (%)	67.50 $\pm 5.35$	63.44 $\pm 6.80$	65.28 $\pm 8.02$	65.29 $\pm 8.92$
Heinz Bodies (%)	0.0 $\pm 0.00$	0.0 $\pm 0.00$	0.0 $\pm 0.00$	0.0 $\pm 0.00$
MCV (CUMICR)	52.56 $\pm 0.84$	52.43 $\pm 0.56$	53.05 $\pm 0.42$	53.02 $\pm 0.78$
MCH (PICOgm)	18.30 * $\pm 0.33$	18.50 * $\pm 0.38$	19.02 $\pm 0.24$	18.93 $\pm 0.48$
MCHC (g/dl)	34.84 * $\pm 0.59$	35.49 $\pm 0.43$	35.86 $\pm 0.52$	35.74 $\pm 0.95$
Retic (%)	3.36 * $\pm 0.41$	2.56 $\pm 0.22$	2.69 $\pm 0.59$	2.50 $\pm 0.42$
MetHb (%)	1.74 * $\pm 0.55$	1.01 0.55	0.87 $\pm 0.46$	0.69 $\pm 0.48$

Mean  $\pm$  Standard Deviation\* Significantly different from the control group ( $P \leq 0.05$ ) by the Dunnett's Test.

Table 8: Hematology Values/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
RBC ( $\times 10^6/\mu\text{l}$ )	8.93 $\pm 0.22$	9.13 $\pm 0.26$	9.13 $\pm 0.21$	9.09 $\pm 0.27$
Hemoglobin (g/dl)	14.32 * $\pm 0.30$	14.90 $\pm 0.44$	15.13 $\pm 0.39$	15.21 $\pm 0.59$
Hematocrit (%)	42.92 * $\pm 0.80$	43.99 $\pm 1.44$	44.56 $\pm 1.37$	44.86 $\pm 1.63$
WBC ( $\times 10^3/\mu\text{l}$ )	4.40 * $\pm 1.21$	3.71 $\pm 0.44$	3.76 $\pm 0.33$	3.43 $\pm 0.61$
Platelets ( $\times 10^3/\mu\text{l}$ )	766.10 * $\pm 31.44$	729.30 $\pm 24.87$	736.00 $\pm 51.58$	708.50 $\pm 53.46$
Segmented Leukocytes (%)	32.55 $\pm 5.65$	33.85 $\pm 5.91$	36.75 $\pm 5.63$	37.04 $\pm 4.51$
Lymphocytes (%)	62.53 $\pm 6.18$	60.86 $\pm 6.32$	57.94 $\pm 5.70$	57.54 $\pm 4.84$
Heinz Bodies (%)	0.0 $\pm 0.00$	0.0 $\pm 0.00$	0.0 $\pm 0.00$	0.0 $\pm 0.00$
MCV (CUMICR)	48.07 * $\pm 0.94$	48.18 * $\pm 0.84$	48.80 $\pm 0.84$	49.37 $\pm 0.80$
MCH (PICOgm)	16.04 * $\pm 0.49$	16.32 * $\pm 0.21$	16.56 $\pm 0.16$	16.73 $\pm 0.27$
MCHC (g/dl)	33.36 * $\pm 0.57$	33.89 $\pm 0.35$	33.96 $\pm 0.48$	33.89 $\pm 0.38$
Retic (%)	3.19 $\pm 0.46$	2.71 $\pm 0.43$	2.84 $\pm 0.84$	2.68 $\pm 0.65$
MetHb (%)	2.35 * $\pm 0.43$	1.38 * $\pm 0.75$	1.02 $\pm 0.30$	0.71 $\pm 0.41$

Mean  $\pm$  Standard Deviation\* Significantly different from the control group ( $P \leq 0.05$ ) by the Dunnett's Test.

Table 9: Clinical Chemistry Values/Females

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Glucose (mg/dl)	126.20 ± 5.75	127.20 ± 13.14	130.80 ± 15.92	128.00 ± 10.80
BUN (mg/dl)	23.30 ± 4.16*	19.40 ± 2.37	17.20 ± 2.04	18.50 ± 1.78
Creatinine (mg/dl)	0.66 ± 0.05*	0.63 ± 0.05	0.59 ± 0.06	0.60 ± 0.00
Alk phos (IU/L)	53.90 ± 10.47	51.90 ± 7.98	49.30 ± 9.96	53.50 ± 6.02
AST (IU/L)	157.20 ± 23.41	137.50 ± 36.88	125.70 ± 53.93	119.70 ± 17.63
ALT (IU/L)	72.20 ± 10.77	62.40 ± 15.34	59.50 ± 22.04	57.00 ± 7.33
Cholesterol (mg/dl)	155.20 ± 11.22*	152.60 ± 10.10	140.10 ± 17.95	140.20 ± 9.91
Potassium (mEq/L)	4.44 ± 0.29	4.36 ± 0.36	4.26 ± 0.25	4.12 ± 0.30
Albumin (g/dl)	4.98 ± 0.21	5.08 ± 0.23	4.92 ± 0.21	4.88 ± 0.23
Calcium (mg/dl)	10.76 ± 0.24	10.73 ± 0.27	10.62 ± 0.34	10.61 ± 0.24
Phosphorus (mg/dl)	7.14 ± 0.71	6.74 ± 0.65	6.31 ± 0.83	6.64 ± 0.87
Triglycerides (mg/dl)	52.20 ± 28.23	88.20 ± 42.57	66.30 ± 34.27	70.90 ± 31.31
Sodium (mEq/L)	141.10 ± 0.88	141.20 ± 1.03	141.00 ± 1.05	140.80 ± 1.14
Total Bilirubin (mg/dl)	0.16 ± 0.05	0.14 ± 0.05	0.12 ± 0.04	0.13 ± 0.05
Total Protein (g/dl)	7.49 ± 0.19*	7.41 ± 0.20	7.25 ± 0.40	7.14 ± 0.29

Mean ± Standard Deviation

\* Significantly different from controls;  $p \leq 0.05$  by Dunnett's test.

Table 10: Clinical Chemistry Values/Males

	Dose Groups (mg TNB/kg diet)			
	300	60	5	0
Glucose (mg/dl)	173.00 ± 25.03	165.40 ± 14.80	168.90 ± 17.01	166.40 ± 27.63
BUN (mg/dl)	21.40 ± 2.46*	18.30 ± 1.57	18.80 ± 1.81	18.10 ± 1.52
Creatinine (mg/dl)	0.63 ± 0.05	0.63 ± 0.05	0.57 ± 0.05	0.60 ± 0.05
Cholesterol (mg/dl)	93.80 ± 7.51	108.40 ± 12.63	106.30 ± 14.58	96.00 ± 13.54
Alk phos (IU/L)	79.30 ± 7.29*	88.30 ± 16.92	99.30 ± 12.12	98.20 ± 15.97
AST (IU/L)	247.40 ± 71.14	236.30 ± 78.04	291.70 ± 71.69	298.30 ± 100.13
ALT (IU/L)	116.40 ± 32.80*	133.70 ± 36.40	161.30 ± 38.51	168.60 ± 59.70
Potassium (mEq/L)	5.04 ± 0.49	4.94 ± 0.45	5.03 ± 0.44	4.79 ± 0.33
Albumin (g/dl)	4.62 ± 0.20*	4.31 ± 0.23	4.33 ± 0.23	4.18 ± 0.22
Calcium (mg/dl)	10.64 ± 0.18	10.58 ± 0.23	10.58 ± 0.30	10.47 ± 0.22
Phosphorus (mg/dl)	7.75 ± 0.52	7.74 ± 0.41	7.62 ± 0.89	7.49 ± 0.62
Triglycerides (mg/dl)	64.90 ± 33.04	111.50 ± 47.25	118.00 ± 52.77	97.10 ± 45.00
Sodium (mEq/L)	141.70 ± 1.06	141.10 ± 0.99*	142.30 ± 0.95	142.30 ± 0.95
Total Bilirubin (mg/dl)	0.11 ± 0.03	0.10 ± 0.00	0.10 ± 0.00	0.10 ± 0.00
Total Protein (g/dl)	7.10 ± 0.25*	6.76 ± 0.27	6.91 ± 0.25	6.76 ± 0.13

Mean ± Standard Deviation

\* Significantly different from controls;  $p \leq 0.05$  by Dunnett's test.

CLINICAL CHEMISTRY  
AND  
HEMATOLOGY DATA



# Hematology Data/Females

DOSE GROUPS	ANIMALS	METHB	WBC COUNT	RBC COUNT	HGB	HCT	MCV
(mg TNB/kg) diet	#	%	thsn/ cu mm	mill/ cu mm	g/dl	%	cumicr
300	21	2.2	2.7	8.02	14.7	41.4	51.6
	22	1.8	3.5	7.81	13.7	40.1	51.3
	23	1.4	2.8	7.76	14.4	40.9	52.8
	24	1.5	3.0	7.53	14.0	39.7	52.7
	25	2.6	3.8	7.68	13.9	39.8	51.9
	26	1.6	2.9	7.31	13.4	39.1	53.5
	49	1.7	2.4	7.80	14.5	41.0	52.6
	60	1.7	3.2	7.66	14.1	41.5	54.1
	67	2.3	3.0	7.72	14.0	40.6	52.6
	68	0.6	2.8	8.10	14.8	42.5	52.5
60	96	0.0	2.0	8.32	15.5	43.9	52.8
	97	1.3	3.6	8.40	15.4	43.4	51.7
	98	0.6	2.1	8.44	15.4	44.2	52.4
	99	1.4	3.4	8.19	15.6	43.5	53.1
	100	1.3	2.9	8.13	15.1	42.1	51.8
	101	0.5	2.0	8.11	14.8	42.3	52.1
	102	1.9	2.3	8.09	15.3	42.7	52.8
	103	1.3	2.6	7.91	15.1	41.9	52.9
	110	1.1	2.5	8.04	15.2	42.6	53.0
	136	0.7	2.5	8.54	15.4	44.1	51.7
5	171	0.9	0.8	7.96	15.2	42.2	53.0
	172	1.4	2.6	7.91	14.8	42.1	53.3
	173	0.2	2.6	8.19	15.2	42.9	52.4
	174	0.8	1.9	7.75	14.7	41.1	53.0
	175	1.3	1.9	8.18	15.6	43.8	53.5
	176	1.0	2.3	8.22	15.6	43.4	52.8
	177	0.0	2.0	8.10	15.7	42.4	52.4
	178	1.2	1.8	8.23	16.0	43.7	53.1
	179	0.7	2.8	7.69	14.7	41.2	53.6
	189	1.2	2.8	8.09	15.3	43.2	53.4
0	246	0.2	2.2	8.36	15.8	45.1	53.9
	247	0.0	2.1	8.29	15.1	43.4	52.4
	248	0.6	2.1	8.17	15.5	43.4	53.2
	249	1.2	2.3	8.50	16.3	45.1	53.0
	250	1.0	2.1	8.00	15.5	43.5	54.4
	251	0.2	2.1	8.66	15.6	45.8	52.9
	252	0.5	2.2	7.90	15.3	41.2	52.1
	253	0.9	2.0	7.82	15.0	41.2	52.7
	254	1.5	2.3	8.04	15.5	41.9	52.0
	276	0.8	2.0	8.08	15.3	43.3	53.6

# Hematology Data/Females

DOSE GROUPS	ANIMALS	MCH	MCHC	PLAT	NEUTRO- PHILS	LYMPHO- CYTES	RETIC	HEINZ BODIES
(mg TNB/kg)				thsn/ cu mm				
diet	#	picogm	g/dl		%	%	%	%
300	21	18.4	35.6	784	25.8	67.5	3.0	0.0
	22	17.5	34.1	806	19.8	73.4	3.9	0.0
	23	18.6	35.3	795	23.7	71.1	3.0	0.0
	24	18.6	35.4	804	25.6	69.0	3.9	0.0
	25	18.1	34.9	747	38.0	54.9	3.0	0.0
	26	18.4	34.4	692	22.9	73.0	3.9	0.0
	49	18.6	35.4	732	30.2	63.4	3.4	0.0
	60	18.3	33.9	851	28.1	66.7	3.3	0.0
	67	18.2	34.5	*	26.6	67.6	3.3	0.0
	68	18.3	34.9	761	25.6	68.4	2.9	0.0
60	96	18.7	35.4	793	43.2	51.2	3.0	0.0
	97	18.3	35.5	679	25.1	68.1	2.6	0.0
	98	18.3	34.9	626	32.7	61.7	2.3	0.0
	99	18.0	35.8	683	37.1	57.1	2.4	0.0
	100	18.5	35.8	645	31.0	63.5	2.6	0.0
	101	18.2	35.0	583	25.7	69.5	2.8	0.0
	102	18.9	35.8	635	20.1	74.5	2.6	0.0
	103	19.1	36.1	693	30.7	62.7	2.5	0.0
	110	18.9	35.7	629	26.1	67.6	2.3	0.0
	136	18.1	34.9	701	33.9	58.5	2.5	0.0
5	171	19.1	36.0	506	36.9	54.3	3.0	0.0
	172	18.7	35.1	607	31.1	63.1	2.6	0.0
	173	18.6	35.5	617	32.3	60.5	2.5	0.0
	174	19.0	35.8	621	38.1	57.3	2.6	0.0
	175	19.1	35.7	660	33.6	59.1	2.2	0.0
	176	19.0	35.9	659	30.4	64.8	2.7	0.0
	177	19.3	36.9	606	19.5	75.2	2.1	0.0
	178	19.4	36.5	504	17.6	77.3	2.3	0.0
	179	19.1	35.7	788	27.2	66.8	4.2	0.0
	189	18.9	35.5	680	21.0	74.4	2.7	0.0
0	246	18.9	35.0	621	22.3	73.4	2.0	0.0
	247	18.2	34.9	540	22.4	70.8	2.5	0.0
	248	18.9	35.6	697	20.6	75.0	2.2	0.0
	249	19.2	36.2	656	34.1	59.0	2.3	0.0
	250	19.4	35.7	658	22.0	73.5	3.0	0.0
	251	18.0	34.1	572	30.5	59.8	2.6	0.0
	252	19.3	37.0	671	29.0	65.1	3.4	0.0
	253	19.2	36.4	673	46.3	48.1	2.3	0.0
	254	19.3	37.1	631	36.0	57.4	2.2	0.0
	276	18.9	35.4	562	24.9	70.8	2.5	0.0

\*Quantity not sufficient

# Hematology Data/Males

DOSE GROUPS	ANIMALS	METHB	WBC COUNT	RBC COUNT	HGB	HCT	MCV
(mg TNB/kg)			thsn/ cu mm	mill/ cu mm			
diet	#	%			g/dl	%	cumicr
300	306	2.7	2.7	8.41	14.5	42.1	50.0
	307	2.8	5.2	9.05	14.3	43.0	47.6
	308	2.5	3.6	9.08	14.2	43.2	47.5
	309	2.5	3.7	8.91	14.8	43.4	48.8
	310	1.7	5.2	8.87	14.0	42.8	48.2
	311	2.7	3.8	8.85	14.2	42.1	47.5
	312	2.2	2.9	9.09	14.3	43.2	47.6
	313	2.5	6.3	9.14	14.7	44.7	48.9
	314	2.4	5.3	8.80	13.8	42.1	47.9
	326	1.5	5.3	9.11	14.4	42.6	46.7
60	381	1.9	3.8	9.01	14.7	43.0	47.7
	382	0.4	3.7	9.01	14.8	43.2	48.0
	383	2.4	3.2	9.13	14.9	43.9	48.1
	384	1.0	3.3	9.01	14.5	42.3	47.0
	385	2.3	3.5	9.12	15.1	45.2	49.5
	386	1.2	4.7	9.60	15.6	45.9	47.8
	387	1.6	3.6	8.72	14.1	42.0	48.1
	388	1.5	3.4	8.96	14.7	43.5	48.6
	389	1.4	4.1	9.48	15.2	44.9	47.4
	390	0.1	3.8	9.28	15.4	46.0	49.6
5	456	1.0	3.9	9.11	15.2	43.5	47.7
	457	0.7	3.3	9.18	15.4	45.8	49.9
	458	0.5	3.5	9.06	14.9	44.8	49.5
	459	1.1	4.4	9.31	15.7	46.1	49.6
	460	1.3	3.9	9.27	15.3	45.1	48.6
	461	1.0	3.6	9.13	15.1	45.0	49.3
	462	0.8	3.8	8.58	14.2	41.4	48.2
	463	1.0	3.5	9.20	15.0	43.7	47.5
	464	1.3	3.6	9.30	15.2	45.0	48.4
	504	1.5	4.1	9.16	15.3	45.2	49.3
0	531	1.3	2.6	9.43	15.9	46.4	49.2
	532	0.6	4.0	8.61	13.9	41.5	48.3
	533	0.6	3.8	9.26	15.9	47.1	50.9
	534	1.3	4.2	8.92	15.0	44.5	49.9
	535	0.8	4.3	9.44	15.7	46.5	49.3
	536	0.5	2.8	8.83	14.9	43.4	49.2
	537	0.2	3.3	8.96	15.0	45.0	50.2
	538	0.5	3.0	9.00	15.3	44.3	49.2
	539	1.1	2.9	9.31	15.3	45.0	48.3
	540	0.2	3.4	9.13	15.2	44.9	49.2

# Hematology Data/Males

DOSE GROUPS	ANIMALS	MCH	MCHC	PLAT	NEUTRO- PHILS	LYMPHO- CYTES	RETIC	HEINZ BODIES
(mg TNB/kg)								
diet	#	picogm	g/dl	thsn/ cu mm	%	%	%	%
300	306	17.2	34.3	746	36.3	57.3	3.6	0.0
	307	15.8	33.3	800	32.6	63.0	2.6	0.0
	308	15.6	32.9	782	27.1	68.6	2.8	0.0
	309	16.6	34.0	728	35.2	57.4	3.4	0.0
	310	15.8	32.8	815	30.3	64.5	3.0	0.0
	311	16.1	33.8	746	32.0	64.2	3.3	0.0
	312	15.8	33.1	789	22.5	73.2	3.2	0.0
	313	16.0	32.8	724	40.8	55.5	2.5	0.0
	314	15.7	32.8	782	29.1	67.0	3.8	0.0
	326	15.8	33.8	749	39.6	54.6	3.7	0.0
60	381	16.4	34.3	764	37.7	55.0	3.5	0.0
	382	16.5	34.3	745	29.1	65.4	2.9	0.0
	383	16.3	33.9	736	35.1	59.1	2.3	0.0
	384	16.1	34.4	706	36.5	57.6	2.7	0.0
	385	16.6	33.4	695	31.9	63.9	2.5	0.0
	386	16.2	33.9	758	44.8	50.0	2.5	0.0
	387	16.1	33.5	735	37.3	58.6	3.1	0.0
	388	16.4	33.8	744	34.4	59.9	3.1	0.0
	389	16.0	33.8	712	24.3	71.3	2.2	0.0
	390	16.6	33.6	698	27.4	67.8	2.3	0.0
5	456	16.7	34.9	770	43.1	51.1	3.1	0.0
	457	16.7	33.5	634	40.3	55.5	3.3	0.0
	458	16.5	33.3	770	33.1	61.5	3.6	0.0
	459	16.8	33.9	722	35.4	58.1	2.3	0.0
	460	16.5	33.9	745	33.8	61.7	1.8	0.0
	461	16.5	33.5	696	29.5	65.0	2.5	0.0
	462	16.5	34.3	820	36.2	57.0	4.5	0.0
	463	16.3	34.4	696	46.7	48.0	3.1	0.0
	464	16.4	33.9	747	39.6	55.9	2.2	0.0
	504	16.7	34.0	760	29.8	65.6	2.0	0.0
0	531	16.8	34.2	723	32.9	61.3	2.3	0.0
	532	16.2	33.5	797	35.8	59.6	3.1	0.0
	533	17.1	33.7	714	33.8	60.8	1.9	0.0
	534	16.9	33.8	749	35.9	58.2	3.4	0.0
	535	16.6	33.7	671	45.9	48.1	1.6	0.0
	536	16.9	34.3	760	38.7	56.8	3.7	0.0
	537	16.7	33.3	633	42.0	51.5	2.4	0.0
	538	17.0	34.5	723	35.6	57.7	2.7	0.0
	539	16.5	34.1	637	30.7	64.9	2.7	0.0
	540	16.6	33.8	678	39.1	56.5	3.0	0.0

# Clinical Chemistries/Females

DOSE GROUPS	ANIMALS	GLUCOSE	BUN	CREAT	SODIUM	POTASSIUM	CHOL
(mg TNB/kg)							
diet	#	mg/dl	mg/dl	mg/dl	mmol/l	mmol/l	mg/dl
300	21	127	25	0.6	142	4.6	154
	22	133	27	0.7	141	4.4	155
	23	121	19	0.6	142	4.5	170
	24	128	21	0.7	141	4.4	150
	25	118	20	0.6	140	4.6	134
	26	125	27	0.7	140	4.3	149
	49	133	17	0.6	142	5.0	150
	60	122	21	0.7	141	4.5	171
	67	121	27	0.7	140	3.9	153
	68	134	29	0.7	142	4.2	166
60	96	120	16	0.7	140	4.6	156
	97	134	20	0.7	140	5.0	161
	98	143	21	0.6	142	4.5	149
	99	107	17	0.6	141	4.2	157
	100	131	20	0.6	141	4.0	147
	101	138	21	0.6	143	4.6	140
	102	108	19	0.7	142	3.9	161
	103	141	16	0.6	140	3.9	133
	110	132	21	0.6	141	4.3	158
	136	118	23	0.6	142	4.6	164
5	171	133	15	0.5	140	4.5	131
	172	107	18	0.5	140	3.9	140
	173	139	18	0.6	142	4.2	143
	174	140	15	0.6	141	4.8	136
	175	127	18	0.6	141	4.2	178
	176	134	16	0.6	141	4.1	124
	177	132	22	0.7	143	4.1	145
	178	158	16	0.6	140	4.2	110
	179	103	17	0.6	140	4.2	141
	189	135	17	0.6	142	4.4	153
0	246	117	17	0.6	142	4.2	136
	247	127	19	0.6	141	4.1	142
	248	131	21	0.6	141	3.8	133
	249	127	19	0.6	141	4.2	123
	250	137	17	0.6	142	4.7	136
	251	104	17	0.6	139	4.4	154
	252	132	22	0.6	141	3.8	132
	253	135	18	0.6	139	3.8	152
	254	128	18	0.6	140	3.9	145
	276	142	17	0.6	142	4.3	149

# Clinical Chemistries/Females

DOSE GROUPS	ANIMALS	AST	ALT	PHOS	AP	CA	TOTAL BILIRUBIN	TOTAL PROTEIN	ALB	TRIG
(mg TNB/kg)										
diet	#	U/L	U/L	mg/dl	U/L	mg/dl	mg/dl	g/dl	g/dl	mg/dl
300	21	125	64	7.0	41	10.9	0.2	7.7	5.0	25
	22	181	68	8.2	69	11.2	0.2	7.5	5.2	88
	23	122	63	6.4	49	10.8	0.1	7.4	5.0	59
	24	159	55	6.8	44	10.9	0.1	7.5	5.0	36
	25	179	89	8.0	66	10.8	0.1	7.6	4.5	21
	26	152	70	8.0	63	10.4	0.2	7.3	4.9	57
	49	142	74	6.7	46	10.4	0.2	7.3	4.9	23
	60	192	71	6.5	43	10.7	0.1	7.6	4.9	37
	67	152	82	7.4	57	10.7	0.2	7.2	5.2	78
	68	168	86	6.4	61	10.8	0.2	7.8	5.2	98
60	96	96	49	6.5	38	10.8	0.2	7.6	4.9	41
	97	174	62	7.7	61	10.8	0.1	7.6	5.2	43
	98	154	72	6.1	53	10.8	0.1	7.2	5.0	143
	99	123	73	6.5	49	10.2	0.1	7.5	4.8	116
	100	123	67	6.1	59	11.0	0.1	7.7	5.6	144
	101	194	86	6.9	46	10.4	0.2	7.1	5.0	29
	102	115	45	6.9	49	10.9	0.1	7.3	5.3	122
	103	80	40	5.9	44	10.5	0.1	7.4	4.9	81
	110	140	52	7.8	60	10.9	0.2	7.5	5.1	68
	136	176	78	7.0	60	11.0	0.2	7.2	5.0	95
5	171	141	58	5.4	58	10.3	0.2	6.7	4.8	48
	172	87	39	5.3	58	10.6	0.2	7.6	5.2	83
	173	114	57	7.7	68	10.5	0.1	6.6	4.9	53
	174	258	112	5.1	39	10.3	0.1	7.3	4.8	32
	175	100	46	7.0	49	11.4	0.1	7.8	5.3	85
	176	80	46	6.4	49	10.4	0.1	7.4	4.9	39
	177	137	58	6.6	45	11.0	0.1	7.2	4.8	146
	178	161	83	6.2	36	10.5	0.1	6.9	4.6	66
	179	95	47	6.8	40	10.7	0.1	7.6	4.8	34
	189	84	49	6.6	51	10.5	0.1	7.4	5.1	77
0	246	134	67	6.7	58	10.6	0.1	7.2	5.2	96
	247	99	47	6.6	51	10.6	0.1	7.3	5.2	32
	248	126	60	8.0	59	10.7	0.2	6.6	4.8	73
	249	123	59	7.0	61	11.0	0.1	7.2	4.8	123
	250	105	48	4.5	45	10.2	0.1	7.2	4.8	40
	251	142	61	6.7	60	10.3	0.2	7.6	5.0	89
	252	116	62	6.9	54	10.9	0.1	6.7	4.8	100
	253	93	50	6.8	51	10.6	0.1	7.3	4.8	30
	254	114	51	6.9	44	10.6	0.1	7.1	4.4	67
	276	145	65	6.3	52	10.6	0.2	7.2	5.0	59

Clinical Chemistries/Males

DOSE GROUPS	ANIMALS	GLUCOSE	BUN	CREAT	SODIUM	POTASSIUM	CHOL
(mg TNB/kg)							
diet	#	mg/dl	mg/dl	mg/dl	mmol/l	mmol/l	mg/dl
300	306	219	20	0.6	141	5.5	95
	307	188	26	0.7	142	4.7	84
	308	132	23	0.6	141	4.8	94
	309	178	20	0.6	143	4.9	89
	310	160	21	0.6	141	4.3	109
	311	182	21	0.6	143	5.0	92
	312	195	19	0.7	140	6.1	84
	313	155	25	0.7	142	4.9	93
	314	150	20	0.6	143	4.9	100
	326	171	19	0.6	141	5.3	98
60	381	163	18	0.7	140	5.1	109
	382	173	18	0.7	141	4.6	114
	383	144	18	0.6	142	4.9	109
	384	164	17	0.6	139	4.6	85
	385	161	18	0.6	142	5.4	113
	386	198	18	0.6	142	5.1	101
	387	151	20	0.6	141	4.4	95
	388	157	17	0.6	141	4.6	132
	389	174	22	0.7	142	4.8	114
	390	169	17	0.6	141	5.9	112
5	456	201	20	0.6	143	4.6	121
	457	186	17	0.6	144	5.0	95
	458	164	19	0.6	142	5.2	94
	459	164	21	0.6	143	4.8	134
	460	151	21	0.6	143	5.4	104
	461	153	17	0.5	141	5.2	119
	462	173	17	0.5	142	4.9	90
	463	185	17	0.5	142	5.2	111
	464	151	18	0.6	142	5.8	93
	504	161	21	0.6	141	4.2	102
0	531	184	18	0.6	142	4.5	82
	532	131	21	0.6	143	4.6	123
	533	124	20	0.6	142	5.3	95
	534	194	19	0.5	142	4.2	102
	535	131	18	0.6	144	5.0	84
	536	194	17	0.6	141	4.8	105
	537	165	18	0.6	143	4.6	109
	538	171	17	0.7	142	5.2	86
	539	188	17	0.6	141	4.9	83
	540	182	16	0.6	143	4.8	91

# Clinical Chemistries/Males

DOSE GROUPS	ANIMALS	AST	ALT	PHOS	AP	CA	TOTAL BILIRUBIN	TOTAL PROTEIN	ALB	TRIG
(mg TNB/kg)										
diet	#	U/L	U/L	mg/dl	U/L	mg/dl	mg/dl	g/dl	g/dl	mg/dl
300	306	186	92	7.3	79	10.7	0.1	7.0	4.7	42
	307	186	90	7.7	91	10.8	0.2	7.4	4.5	68
	308	159	78	8.1	79	10.6	0.1	7.0	4.5	70
	309	217	99	8.3	77	10.5	0.1	6.9	4.5	29
	310	264	118	7.2	79	10.4	0.1	6.9	4.6	106
	311	235	115	7.1	71	10.5	0.1	6.9	4.6	42
	312	267	130	8.1	68	10.5	0.1	6.8	4.4	25
	313	256	122	7.8	90	10.9	0.1	7.5	5.1	100
	314	295	124	8.6	83	10.9	0.1	7.4	4.8	117
	326	409	196	7.3	76	10.6	0.1	7.2	4.5	50
60	381	203	135	7.7	89	10.7	0.1	6.9	4.3	102
	382	219	144	7.2	94	10.6	0.1	6.7	4.3	128
	383	146	91	7.9	101	10.6	0.1	6.7	4.3	195
	384	142	89	7.8	76	10.1	0.1	6.3	3.9	44
	385	326	151	8.3	77	10.9	0.1	6.9	4.4	109
	386	319	172	7.5	88	10.3	0.1	6.9	4.4	110
	387	325	174	8.2	104	10.6	0.1	6.8	4.3	92
	388	134	77	7.3	53	10.6	0.1	6.3	4.0	49
	389	285	171	7.3	113	10.7	0.1	7.1	4.7	174
	390	264	133	8.2	88	10.7	0.1	7.0	4.5	112
5	456	243	159	5.8	120	10.3	0.1	6.8	4.2	135
	457	309	203	7.3	88	10.5	0.1	6.8	4.3	103
	458	262	138	8.7	93	10.9	0.1	6.9	4.5	124
	459	230	112	8.3	97	11.2	0.1	7.5	4.9	236
	460	459	239	8.3	93	10.4	0.1	7.1	4.3	94
	461	308	181	7.7	113	10.8	0.1	7.0	4.2	147
	462	217	141	7.6	84	10.4	0.1	6.8	4.3	33
	463	351	173	6.6	109	10.2	0.1	6.6	4.1	93
	464	285	141	8.4	89	10.5	0.1	6.7	4.2	84
	504	253	126	7.5	107	10.6	0.1	6.9	4.3	131
0	531	199	103	6.7	83	10.0	0.1	6.6	4.0	64
	532	420	218	8.1	120	10.7	0.1	6.9	3.8	116
	533	199	98	8.3	87	10.6	0.1	7.0	4.3	53
	534	250	179	6.6	113	10.4	0.1	6.8	4.5	159
	535	251	132	8.3	113	10.7	0.1	6.9	4.4	107
	536	386	245	7.2	107	10.4	0.1	6.7	4.4	85
	537	460	251	7.3	111	10.6	0.1	6.7	4.1	186
	538	172	96	7.1	83	10.3	0.1	6.6	4.0	69
	539	331	164	7.8	88	10.4	0.1	6.7	4.2	58
	540	315	200	7.5	77	10.6	0.1	6.7	4.1	74



BODY AND ORGAN  
WEIGHTS

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
1	21	175.20	1.373	1.046	5.555	0.784	0.597	3.171
1	22	147.72	1.397	1.168	5.974	0.946	0.791	4.044
1	23	190.31	1.369	1.372	5.781	0.719	0.721	3.038
1	24	201.34	1.530	1.405	6.088	0.760	0.698	3.024
1	25	187.44	1.459	1.210	5.925	0.778	0.646	3.161
1	26	180.96	1.328	1.053	5.507	0.734	0.582	3.043
1	49	176.08	1.347	1.070	4.988	0.765	0.608	2.833
1	60	204.33	1.518	1.239	6.857	0.743	0.606	3.356
1	67	187.04	1.380	1.331	5.505	0.738	0.712	2.943
1	68	179.84	1.277	0.977	5.882	0.710	0.543	3.271
2	96	236.63	1.804	1.081	6.914	0.762	0.457	2.922
2	97	207.02	1.582	1.441	5.954	0.764	0.696	2.876
2	98	216.75	1.613	1.467	6.041	0.744	0.677	2.787
2	99	195.46	1.514	1.473	5.940	0.775	0.754	3.039
2	100	221.36	1.620	1.257	6.183	0.732	0.568	2.793
2	101	179.25	1.304	1.000	4.891	0.727	0.558	2.729
2	102	223.68	1.714	1.340	6.467	0.766	0.599	2.891
2	103	233.67	1.650	1.227	6.704	0.706	0.525	2.869
2	110	221.19	1.646	1.100	6.484	0.744	0.497	2.931
2	136	205.32	1.564	1.214	5.871	0.762	0.591	2.859
3	171	255.00	1.778	1.373	6.829	0.697	0.538	2.678
3	172	238.57	1.667	1.442	6.470	0.699	0.604	2.712
3	173	215.10	1.573	1.362	6.198	0.731	0.633	2.881
3	174	223.19	1.642	1.092	6.292	0.736	0.489	2.819
3	175	218.63	1.556	1.221	6.356	0.712	0.558	2.907
3	176	195.66	1.450	0.981	5.220	0.741	0.501	2.668
3	177	218.12	1.480	1.335	6.177	0.679	0.612	2.832
3	178	255.47	1.601	1.931	6.674	0.627	0.756	2.612
3	179	208.28	1.509	1.353	5.926	0.725	0.650	2.845
3	189	210.09	1.702	1.117	6.418	0.810	0.532	3.055
4	246	216.45	1.549	1.333	5.951	0.716	0.616	2.749
4	247	206.10	1.406	1.219	5.965	0.682	0.591	2.894
4	248	232.52	1.661	1.196	6.458	0.714	0.514	2.777
4	249	242.97	1.747	1.675	6.360	0.719	0.689	2.618
4	250	215.44	1.574	1.259	5.506	0.731	0.584	2.556
4	251	222.23	1.582	1.002	6.345	0.712	0.451	2.855
4	252	210.36	1.546	1.097	5.794	0.735	0.521	2.754
4	253	209.80	1.633	1.279	5.970	0.778	0.610	2.846
4	254	237.77	1.740	1.197	6.644	0.732	0.503	2.794
4	276	234.14	1.562	1.010	6.243	0.667	0.431	2.666

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
1	21	175.20	0.695	1.691	0.522	0.397	0.965	0.298
1	22	147.72	0.673	1.821	0.630	0.456	1.233	0.426
1	23	190.31	0.826	1.757	0.519	0.434	0.923	0.273
1	24	201.34	0.784	1.759	0.686	0.389	0.874	0.341
1	25	187.44	0.719	1.817	0.612	0.384	0.969	0.327
1	26	180.96	0.779	1.846	0.527	0.430	1.020	0.291
1	49	176.08	0.643	1.694	0.490	0.365	0.962	0.278
1	60	204.33	0.774	1.820	0.626	0.379	0.891	0.306
1	67	187.04	0.780	1.257	0.617	0.417	0.672	0.330
1	68	179.84	0.734	1.741	0.484	0.408	0.968	0.269
2	96	236.63	0.817	1.899	0.588	0.345	0.803	0.248
2	97	207.02	0.720	2.148	0.507	0.348	1.038	0.245
2	98	216.75	0.851	1.760	0.513	0.393	0.812	0.237
2	99	195.46	0.794	1.715	0.519	0.406	0.877	0.266
2	100	221.36	0.781	1.789	0.534	0.353	0.808	0.241
2	101	179.25	0.655	1.520	0.465	0.365	0.848	0.259
2	102	223.68	0.791	1.924	0.578	0.354	0.860	0.258
2	103	233.67	0.923	1.821	0.557	0.395	0.779	0.238
2	110	221.19	0.931	1.875	0.497	0.421	0.848	0.225
2	136	205.32	0.668	1.687	0.509	0.325	0.822	0.248
3	171	255.00	0.791	1.854	0.734	0.310	0.727	0.288
3	172	238.57	0.874	1.889	0.585	0.366	0.792	0.245
3	173	215.10	0.711	1.803	0.504	0.331	0.838	0.234
3	174	223.19	0.823	1.839	0.538	0.369	0.824	0.241
3	175	218.63	0.734	1.722	0.454	0.336	0.788	0.208
3	176	195.66	0.675	1.733	0.378	0.345	0.886	0.193
3	177	218.12	0.779	1.872	0.476	0.357	0.858	0.218
3	178	255.47	0.952	1.836	0.473	0.373	0.719	0.185
3	179	208.28	0.812	1.921	0.494	0.390	0.922	0.237
3	189	210.09	0.808	1.912	0.531	0.385	0.910	0.253
4	246	216.45	0.792	1.718	0.486	0.366	0.794	0.225
4	247	206.10	0.712	1.723	0.552	0.345	0.836	0.268
4	248	232.52	0.722	1.927	0.560	0.311	0.829	0.241
4	249	242.97	0.848	1.849	0.522	0.349	0.761	0.215
4	250	215.44	0.806	1.836	0.462	0.374	0.852	0.214
4	251	222.23	0.871	1.875	0.596	0.392	0.844	0.268
4	252	210.36	0.730	1.984	0.480	0.347	0.943	0.228
4	253	209.80	0.927	1.764	0.485	0.442	0.841	0.231
4	254	237.77	0.856	1.758	0.511	0.360	0.739	0.215
4	276	234.14	0.847	1.714	0.490	0.362	0.732	0.209

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	OVARIES WEIGHT	% ADRENAL	% THYMUS	% OVARIES
1	21	175.20	0.052	0.118	0.120	0.030	0.067	0.068
1	22	147.72	0.062	0.136	0.107	0.042	0.092	0.072
1	23	190.31	0.078	0.102	0.154	0.041	0.054	0.081
1	24	201.34	0.068	0.122	0.167	0.034	0.061	0.083
1	25	187.44	0.062	0.134	0.156	0.033	0.071	0.083
1	26	180.96	0.044	0.116	0.134	0.024	0.064	0.074
1	49	176.08	0.066	0.095	0.184	0.037	0.054	0.104
1	60	204.33	0.064	0.158	0.140	0.031	0.077	0.069
1	67	187.04	0.065	0.183	0.149	0.035	0.098	0.080
1	68	179.84	0.063	0.109	0.499	0.035	0.061	0.277
2	96	236.63	0.092	0.218	0.130	0.039	0.092	0.055
2	97	207.02	0.078	0.116	0.160	0.038	0.056	0.077
2	98	216.75	0.088	0.168	0.194	0.041	0.078	0.090
2	99	195.46	0.076	0.127	0.159	0.039	0.065	0.081
2	100	221.36	0.084	0.231	0.129	0.038	0.104	0.058
2	101	179.25	0.075	0.116	0.089	0.042	0.065	0.050
2	102	223.68	0.092	0.161	0.158	0.041	0.072	0.071
2	103	233.67	0.068	0.153	0.141	0.029	0.065	0.060
2	110	221.19	0.069	0.175	0.110	0.031	0.079	0.050
2	136	205.32	0.080	0.187	0.158	0.039	0.091	0.077
3	171	255.00	0.075	0.194	0.288	0.029	0.076	0.113
3	172	238.57	0.078	0.287	0.144	0.033	0.120	0.060
3	173	215.10	0.099	0.192	0.146	0.046	0.089	0.068
3	174	223.19	0.070	0.079	0.159	0.031	0.035	0.071
3	175	218.63	0.059	0.227	0.176	0.027	0.104	0.081
3	176	195.66	0.071	0.168	0.097	0.036	0.086	0.050
3	177	218.12	0.072	0.243	0.130	0.033	0.111	0.060
3	178	255.47	0.067	0.247	0.139	0.026	0.097	0.054
3	179	208.28	0.083	0.138	0.153	0.040	0.066	0.073
3	189	210.09	0.077	0.145	0.129	0.037	0.069	0.061
4	246	216.45	0.060	0.158	0.214	0.028	0.073	0.099
4	247	206.10	0.061	0.198	0.135	0.030	0.096	0.066
4	248	232.52	0.079	0.165	0.158	0.034	0.071	0.068
4	249	242.97	0.065	0.190	0.224	0.027	0.078	0.092
4	250	215.44	0.083	0.184	0.151	0.039	0.085	0.070
4	251	222.23	0.054	0.165	0.101	0.024	0.074	0.045
4	252	210.36	0.065	0.092	0.107	0.031	0.044	0.051
4	253	209.80	0.089	0.172	0.179	0.042	0.082	0.085
4	254	237.77	0.050	0.179	0.090	0.021	0.075	0.038
4	276	234.14	0.055	0.183	0.152	0.023	0.078	0.065

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	KIDNEY WEIGHT	LUNGS WEIGHT	LIVER WEIGHT	% KIDNEY	% LUNGS	% LIVER
5	306	347.74	2.430	1.356	10.645	0.699	0.390	3.061
5	307	354.77	2.617	1.802	10.303	0.738	0.508	2.904
5	308	383.86	2.946	1.962	11.107	0.767	0.511	2.894
5	309	313.99	2.170	1.307	8.738	0.691	0.416	2.783
5	310	358.43	2.776	2.187	10.903	0.774	0.610	3.042
5	311	349.19	2.718	1.766	10.466	0.778	0.506	2.997
5	312	371.40	2.959	1.907	11.159	0.797	0.513	3.005
5	313	357.30	2.850	1.677	11.592	0.798	0.469	3.244
5	314	359.66	2.837	1.847	12.401	0.789	0.514	3.448
5	326	336.20	2.628	1.686	10.322	0.782	0.501	3.070
6	381	453.49	3.347	1.925	13.159	0.738	0.424	2.902
6	382	431.18	3.205	2.174	13.010	0.743	0.504	3.017
6	383	412.47	2.987	2.037	12.429	0.724	0.494	3.013
6	384	408.36	3.251	1.853	11.675	0.796	0.454	2.859
6	385	409.65	2.961	1.854	11.417	0.723	0.453	2.787
6	386	394.83	2.845	1.771	12.066	0.721	0.449	3.056
6	387	378.91	2.956	2.040	10.732	0.780	0.538	2.832
6	388	412.80	2.969	2.281	12.399	0.719	0.553	3.004
6	389	377.69	2.503	1.792	11.197	0.663	0.474	2.965
6	390	414.72	2.953	1.634	11.588	0.712	0.394	2.794
7	456	438.00	2.777	2.176	12.044	0.634	0.497	2.750
7	457	416.78	2.842	1.998	11.334	0.682	0.479	2.719
7	458	420.09	3.032	2.023	11.658	0.722	0.482	2.775
7	459	410.19	3.053	2.075	12.873	0.744	0.506	3.138
7	460	434.40	3.006	1.634	11.583	0.692	0.376	2.666
7	461	450.83	3.328	1.803	12.709	0.738	0.400	2.819
7	462	398.01	2.730	1.751	11.571	0.686	0.440	2.907
7	463	425.26	3.040	1.981	11.871	0.715	0.466	2.791
7	464	396.78	2.855	2.193	11.343	0.720	0.553	2.859
7	504	431.03	3.001	1.641	12.078	0.696	0.381	2.802
8	531	400.62	2.672	1.671	10.379	0.667	0.417	2.591
8	532	426.08	3.169	2.232	13.172	0.744	0.524	3.091
8	533	372.16	2.522	1.802	9.533	0.678	0.484	2.562
8	534	425.64	2.820	1.882	12.029	0.663	0.442	2.826
8	535	413.20	3.039	2.198	10.505	0.735	0.532	2.542
8	536	402.73	2.905	1.791	11.900	0.721	0.445	2.955
8	537	396.63	2.700	1.801	11.007	0.681	0.454	2.775
8	538	400.77	2.913	1.923	11.327	0.727	0.480	2.826
8	539	384.55	2.860	1.976	10.600	0.744	0.514	2.756
8	540	391.24	2.549	1.446	9.988	0.652	0.370	2.553

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	HEART WEIGHT	BRAIN WEIGHT	SPLEEN WEIGHT	% HEART	% BRAIN	% SPLEEN
5	306	347.74	1.181	1.966	0.739	0.340	0.565	0.213
5	307	354.77	1.080	1.894	0.869	0.304	0.534	0.245
5	308	383.86	1.366	2.107	0.839	0.356	0.549	0.219
5	309	313.99	0.984	1.881	0.724	0.313	0.599	0.231
5	310	358.43	1.242	1.936	0.843	0.347	0.540	0.235
5	311	349.19	1.133	1.971	0.839	0.324	0.564	0.240
5	312	371.40	1.322	1.934	0.861	0.356	0.521	0.232
5	313	357.30	1.150	1.974	0.824	0.322	0.552	0.231
5	314	359.66	1.185	1.913	0.866	0.329	0.532	0.241
5	326	336.20	1.157	1.831	0.825	0.344	0.545	0.245
6	381	453.49	1.442	2.116	0.903	0.318	0.467	0.199
6	382	431.18	1.352	2.043	0.854	0.314	0.474	0.198
6	383	412.47	1.293	2.004	0.806	0.313	0.486	0.195
6	384	408.36	1.218	1.973	0.848	0.298	0.483	0.208
6	385	409.65	1.230	2.063	0.803	0.300	0.504	0.196
6	386	394.83	1.182	1.999	0.754	0.299	0.506	0.191
6	387	378.91	1.320	2.015	0.798	0.348	0.532	0.211
6	388	412.80	1.301	2.058	0.916	0.315	0.499	0.222
6	389	377.69	1.095	1.903	0.733	0.290	0.504	0.194
6	390	414.72	1.167	1.979	0.982	0.281	0.477	0.237
7	456	438.00	1.110	1.961	0.811	0.253	0.448	0.185
7	457	416.78	1.298	1.928	0.868	0.311	0.463	0.208
7	458	420.09	1.301	2.001	0.870	0.310	0.476	0.207
7	459	410.19	1.312	1.972	0.817	0.320	0.481	0.199
7	460	434.40	1.543	2.014	0.826	0.355	0.464	0.190
7	461	450.83	1.311	2.112	0.902	0.291	0.468	0.200
7	462	398.01	1.247	1.940	0.763	0.313	0.487	0.192
7	463	425.26	1.244	1.967	0.891	0.293	0.463	0.210
7	464	396.78	1.240	1.973	0.794	0.313	0.497	0.200
7	504	431.03	1.365	1.995	0.742	0.317	0.463	0.172
8	531	400.62	1.343	2.004	0.713	0.335	0.500	0.178
8	532	426.08	1.125	2.084	0.871	0.264	0.489	0.204
8	533	372.16	1.132	1.967	0.664	0.304	0.529	0.178
8	534	425.64	1.236	2.051	0.748	0.290	0.482	0.176
8	535	413.20	1.232	1.925	0.680	0.298	0.466	0.165
8	536	402.73	1.281	1.806	0.789	0.318	0.448	0.196
8	537	396.63	1.192	2.020	0.863	0.301	0.509	0.218
8	538	400.77	1.132	2.055	0.711	0.282	0.513	0.177
8	539	384.55	1.235	1.888	0.774	0.321	0.491	0.201
8	540	391.24	1.262	1.744	0.802	0.323	0.446	0.205

# Body and Organ Weights

GP-ANI NUMBER		BODY WEIGHT	ADRENAL WEIGHT	THYMUS WEIGHT	TESTES WEIGHT	% ADRENAL	% THYMUS	% TESTES
5	306	347.74	0.048	0.188	2.289	0.014	0.054	0.658
5	307	354.77	0.060	0.229	4.725	0.017	0.065	1.332
5	308	383.86	0.057	0.186	2.728	0.015	0.048	0.711
5	309	313.99	0.059	0.117	3.739	0.019	0.037	1.191
5	310	358.43	0.095	0.197	6.084	0.027	0.055	1.697
5	311	349.19	0.052	0.099	4.685	0.015	0.028	1.342
5	312	371.40	0.083	0.085	7.804	0.022	0.023	2.101
5	313	357.30	0.087	0.155	4.099	0.024	0.043	1.147
5	314	359.66	0.085	0.229	6.242	0.024	0.064	1.736
5	326	336.20	0.073	0.173	2.760	0.022	0.051	0.821
6	381	453.49	0.052	0.273	4.948	0.011	0.060	1.091
6	382	431.18	0.087	0.222	7.634	0.020	0.051	1.770
6	383	412.47	0.092	0.478	5.301	0.022	0.116	1.285
6	384	408.36	0.069	0.242	5.820	0.017	0.059	1.425
6	385	409.65	0.091	0.393	5.647	0.022	0.096	1.378
6	386	394.83	0.054	0.301	5.573	0.014	0.076	1.411
6	387	378.91	0.078	0.290	7.764	0.021	0.077	2.049
6	388	412.80	0.125	0.205	7.651	0.030	0.050	1.853
6	389	377.69	0.085	0.364	7.722	0.023	0.096	2.045
6	390	414.72	0.095	0.220	4.435	0.023	0.053	1.069
7	456	438.00	0.056	0.408	5.803	0.013	0.093	1.325
7	457	416.78	0.076	0.221	7.384	0.018	0.053	1.772
7	458	420.09	0.093	0.297	7.978	0.022	0.071	1.899
7	459	410.19	0.078	0.196	5.165	0.019	0.048	1.259
7	460	434.40	0.047	0.226	4.816	0.011	0.052	1.109
7	461	450.83	0.064	0.204	5.417	0.014	0.045	1.202
7	462	398.01	0.062	0.331	8.004	0.016	0.083	2.011
7	463	425.26	0.068	0.442	5.180	0.016	0.104	1.218
7	464	396.78	0.075	0.464	7.175	0.019	0.117	1.808
7	504	431.03	0.055	0.204	4.767	0.013	0.047	1.106
8	531	400.62	0.058	0.221	4.600	0.014	0.055	1.148
8	532	426.08	0.077	0.245	4.797	0.018	0.058	1.126
8	533	372.16	0.046	0.308	5.316	0.012	0.083	1.428
8	534	425.64	0.051	0.451	6.152	0.012	0.106	1.445
8	535	413.20	0.064	0.395	6.113	0.015	0.096	1.479
8	536	402.73	0.075	0.323	3.722	0.019	0.080	0.924
8	537	396.63	0.051	0.297	4.327	0.013	0.075	1.091
8	538	400.77	0.072	0.321	5.741	0.018	0.080	1.432
8	539	384.55	0.112	0.169	7.557	0.029	0.044	1.965
8	540	391.24	0.062	0.175	4.956	0.016	0.045	1.267

HISTOPATHOLOGY  
DATA



## REPORTS CODE TABLE

N	Tissues within normal histological limits
A	Autolysis precluding adequate evaluation
U	Tissues unavailable/unsuitable for evaluation
P	Present
I	Bilateral
L	Unilateral

1	Minimal
2	Mild
3	Moderate
4	Marked

### Abbreviation List

NOS

Not Otherwise Specified

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

PROJECT SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		1	2	3	4
NUMBER OF ANIMALS:		10	10	10	10
	# %	# %	# %	# %	# %
BRAIN	# EX 10	0	0	10	
SCIATIC NERVE	# EX 10	0	0	10	
SPINAL CORD	# EX 10	0	0	10	
SALIVARY GLAND	# EX 10	0	0	10	
PANCREAS	# EX 10	0	0	10	
Degeneration, Acinar	3 30.0	0 0.0	0 0.0	1 10.0	
Lymphocytic Infiltrates	1 10.0	0 0.0	0 0.0	0 0.0	
MANDIBULAR LYMPH NODE	# EX 10	0	0	10	
Hemorrhage	2 20.0	0 0.0	0 0.0	2 20.0	
Pigmentation, NOS	1 10.0	0 0.0	0 0.0	1 10.0	
Histiocytosis	1 10.0	0 0.0	0 0.0	0 0.0	
ZYMBAL'S GLAND	# EX 10	0	0	5	
PITUITARY	# EX 10	1	1	10	
Adenoma, Pars Distalis	1 10.0	0 0.0	1 100.0	1 10.0	
Hyperplasia, Chromophobe Cell	0 0.0	1 100.0	0 0.0	2 20.0	
Cyst, NOS, Pars Distalis	2 20.0	0 0.0	0 0.0	0 0.0	
ADRENALS	# EX 10	0	0	10	
THYROID	# EX 10	0	0	10	
PARATHYROID	# EX 10	0	0	9	

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

PROJECT SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1		2		3		4	
NUMBER OF ANIMALS:	10		10		10		10	
	#	%	#	%	#	%	#	%
TRACHEA	# EX 10		0		0		10	
ESOPHAGUS	# EX 10		0		0		10	
THYMUS	# EX 10		0		0		10	
Atrophy	10	100.0	0	0.0	0	0.0	10	100.0
Hemorrhage	0	0.0	0	0.0	0	0.0	3	30.0
HEART	# EX 10		0		0		10	
Inflammation, Chronic	2	20.0	0	0.0	0	0.0	5	50.0
COLON	# EX 10		0		0		10	
JEJUNUM	# EX 10		0		0		10	
LIVER	# EX 10		10		10		10	
Hyperplasia, Bile Duct	4	40.0	6	60.0	0	0.0	1	10.0
Inflammation, Chronic	9	90.0	5	50.0	8	80.0	6	60.0
Necrosis, Hepatocellular	0	0.0	0	0.0	3	30.0	0	0.0
Basophilic Focus	0	0.0	2	20.0	2	20.0	2	20.0
SPLEEN	# EX 10		10		10		10	
Hyperplasia, Erythroid Cell	6	60.0	6	60.0	3	30.0	4	40.0
Pigmentation, NOS	10	100.0	10	100.0	10	100.0	10	100.0
TONGUE	# EX 10		0		0		10	
Inflammation, Chronic	1	10.0	0	0.0	0	0.0	1	10.0
SKELETAL MUSCLE	# EX 10		0		0		10	

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

PROJECT SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	10	10	10	10
	# %	# %	# %	# %
LUNGS	# EX 10	10	10	10
Inflammation, Chronic	2 20.0	4 40.0	8 80.0	8 80.0
Hyperplasia, Alveolar/Bronchiolar	0 0.0	1 10.0	0 0.0	0 0.0
Lymphocytic Infiltrates, Peribronchiolar	10 100.0	10 100.0	10 100.0	10 100.0
KIDNEY	# EX 10	10	10	10
Mineralization, NOS	10 100.0	9 90.0	10 100.0	10 100.0
Pigmentation, NOS	10 100.0	10 100.0	9 90.0	8 80.0
Cytoplasmic Droplets	10 100.0	10 100.0	0 0.0	0 0.0
Hyperplasia, Epithelial, Pelvis	0 0.0	0 0.0	0 0.0	2 20.0
Lymphocytic Infiltrates	0 0.0	0 0.0	2 20.0	5 50.0
Regeneration, Tubular	1 10.0	1 10.0	5 50.0	3 30.0
Degeneration, Tubular	5 50.0	8 80.0	5 50.0	3 30.0
Vacuolization, Cytoplasmic	0 0.0	0 0.0	1 10.0	4 40.0
Inflammation, Chronic/Active	0 0.0	0 0.0	0 0.0	2 20.0
URINARY BLADDER	# EX 10	0	0	10
STOMACH	# EX 10	0	0	10
DUODENUM	# EX 10	0	0	10
ILEUM	# EX 10	0	0	10
CECUM	# EX 10	0	0	10
RECTUM	# EX 10	0	0	10
MESENTERIC LYMPH NODE	# EX 10	0	0	10

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

PROJECT SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		1	2	3	4
NUMBER OF ANIMALS:		10	10	10	10
		# %	# %	# %	# %
OVARIES	# EX	10	0	1	10
Cyst, NOS		2 20.0	0 0.0	0 0.0	0 0.0
Pigmentation, NOS		10 100.0	0 0.0	0 0.0	10 100.0
Hyperplasia, Interstitial Cell		9 90.0	0 0.0	0 0.0	7 70.0
Congestion		0 0.0	0 0.0	1 100.0	0 0.0
UTERUS	# EX	10	3	3	10
Dilatation		1 10.0	0 0.0	0 0.0	1 10.0
Dilatation, Bilateral		6 60.0	3 100.0	3 100.0	1 10.0
Endometrial Stromal Polyp		0 0.0	0 0.0	1 33.0	0 0.0
SKIN	# EX	10	0	0	10
CLITORAL GLAND	# EX	10	0	0	10
Lymphocytic Infiltrates		1 10.0	0 0.0	0 0.0	2 20.0
Inflammation, Suppurative		0 0.0	0 0.0	0 0.0	2 20.0
Hyperplasia, Ductal Epithelium		0 0.0	0 0.0	0 0.0	1 10.0
EYES	# EX	10	2	1	10
Microgranuloma, Cornea		1 10.0	0 0.0	0 0.0	1 10.0
Cataract		0 0.0	2 100.0	1 100.0	0 0.0
HARDERIAN GLAND	# EX	10	0	0	10
Lymphocytic Infiltrates		5 50.0	0 0.0	0 0.0	4 40.0
FEMUR/STERNUM	# EX	10	0	0	10
Hyperplasia, Erythroid Cell		3 30.0	0 0.0	0 0.0	0 0.0
NASAL	# EX	10	0	0	10
Inflammation, Suppurative		3 30.0	0 0.0	0 0.0	0 0.0
Foreign Body, NOS		1 10.0	0 0.0	0 0.0	0 0.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
 Study No. 93-004  
 Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
 Interim Sacrifice

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 PROJECT SUMMARY  
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STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS  
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GROUP:		1	2	3	4
NUMBER OF ANIMALS:		10	10	10	10
		# %	# %	# %	# %
NASAL	# EX 10	0	0	10	
Hyperplasia, Epithelial	2 20.0	0 0.0	0 0.0	0 0.0	
Necrosis, Epithelial	3 30.0	0 0.0	0 0.0	0 0.0	
MAMMARY GLAND	# EX 10	0	0	10	
Alveolar Dilatation	0 0.0	0 0.0	0 0.0	1 10.0	
AORTA	# EX 10	0	0	10	

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 Incidence Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

PROJECT SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5		6		7		8	
NUMBER OF ANIMALS:		10		10		10		10	
<hr/>									
		#	%	#	%	#	%	#	%
BRAIN	# EX	10		0		0		10	
SCIATIC NERVE	# EX	10		0		0		10	
SPINAL CORD	# EX	10		0		0		10	
SALIVARY GLAND	# EX	10		0		0		10	
PANCREAS	# EX	10		0		0		10	
Degeneration, Acinar		0	0.0	0	0.0	0	0.0	1	10.0
MANDIBULAR LYMPH NODE	# EX	10		1		0		10	
Plasmacytosis		1	10.0	0	0.0	0	0.0	1	10.0
Hemorrhage		3	30.0	1	100.0	0	0.0	0	0.0
ZYMBAL'S GLAND	# EX	8		0		0		9	
PITUITARY	# EX	10		1		0		10	
Adenoma, Pars Distalis		0	0.0	1	100.0	0	0.0	0	0.0
Hyperplasia, Chromophobe Cell		0	0.0	0	0.0	0	0.0	2	20.0
Cyst, NOS, Pars Distalis		0	0.0	0	0.0	0	0.0	1	10.0
ADRENALS	# EX	10		0		0		10	
THYROID	# EX	10		0		0		10	
Cyst, NOS		1	10.0	0	0.0	0	0.0	0	0.0
PARATHYROID	# EX	10		0		0		10	
TRACHEA	# EX	10		0		0		10	

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

PROJECT SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5	6	7	8
NUMBER OF ANIMALS:		10	10	10	10
		# %	# %	# %	# %
ESOPHAGUS	# EX	10	0	0	10
THYMUS	# EX	9	0	0	10
Atrophy		8 89.0	0 0.0	0 0.0	10 100.0
HEART	# EX	10	0	0	10
Inflammation, Chronic		10 100.0	0 0.0	0 0.0	9 90.0
COLON	# EX	10	0	0	10
JEJUNUM	# EX	10	0	0	10
LIVER	# EX	10	10	10	10
Hyperplasia, Bile Duct		10 100.0	10 100.0	10 100.0	10 100.0
Inflammation, Chronic		5 50.0	2 20.0	0 0.0	4 40.0
Inflammation, Chronic/Active		1 10.0	3 30.0	2 20.0	0 0.0
Inflammation, Subacute		1 10.0	1 10.0	4 40.0	6 60.0
Necrosis, Hepatocellular		2 20.0	5 50.0	5 50.0	6 60.0
Eosinophilic Focus		1 10.0	0 0.0	0 0.0	0 0.0
Basophilic Focus		0 0.0	0 0.0	0 0.0	2 20.0
Spongiosis Hepatitis		0 0.0	0 0.0	1 10.0	0 0.0
SPLEEN	# EX	10	10	9	10
Hyperplasia, Erythroid Cell		10 100.0	4 40.0	4 44.0	3 30.0
Pigmentation, NOS		10 100.0	10 100.0	5 56.0	3 30.0
Fibrosis		0 0.0	1 10.0	1 11.0	1 10.0
Hyperplasia, Lymphoid		0 0.0	2 20.0	0 0.0	1 10.0
TONGUE	# EX	10	0	0	10
Inflammation, Chronic		1 10.0	0 0.0	0 0.0	0 0.0
Mineralization, NOS, Endothelial		9 90.0	0 0.0	0 0.0	10 100.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

PROJECT SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:	5		6		7		8	
NUMBER OF ANIMALS:	10		10		10		10	
	#	%	#	%	#	%	#	%
SKELETAL MUSCLE	# EX 10		0		0		10	
LUNGS	# EX 10		10		10		10	
Inflammation, Chronic	3	30.0	5	50.0	7	70.0	5	50.0
Hyperplasia, Alveolar/Bronchiolar	0	0.0	0	0.0	0	0.0	1	10.0
Lymphocytic Infiltrates, Peribronchiolar	10	100.0	10	100.0	10	100.0	9	90.0
KIDNEY	# EX 10		10		10		10	
Cytoplasmic Droplets	10	100.0	10	100.0	0	0.0	0	0.0
Chronic Progressive Nephropathy	10	100.0	10	100.0	10	100.0	10	100.0
Hyperplasia, Epithelial, Pelvis	1	10.0	0	0.0	0	0.0	0	0.0
URINARY BLADDER	# EX 10		0		0		10	
Calculus, NOS	1	10.0	0	0.0	0	0.0	3	30.0
PROSTATE	# EX 10		0		0		10	
Inflammation, Suppurative	2	20.0	0	0.0	0	0.0	1	10.0
Hyperplasia, Epithelial	1	10.0	0	0.0	0	0.0	0	0.0
STOMACH	# EX 10		0		0		10	
DUODENUM	# EX 10		0		0		10	
ILEUM	# EX 10		0		0		10	
CECUM	# EX 10		0		0		10	
RECTUM	# EX 10		0		0		10	
MESENTERIC LYMPH NODE	# EX 10		0		0		10	

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

PROJECT SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5	6	7	8
NUMBER OF ANIMALS:		10	10	10	10
		# %	# %	# %	# %
TESTES	# EX	10	0	0	10
Mesothelioma, NOS		0 0.0	0 0.0	0 0.0	1 10.0
Degeneration, Seminiferous Tubule		6 60.0	0 0.0	0 0.0	2 20.0
Hyperplasia, Interstitial Cell		3 30.0	0 0.0	0 0.0	7 70.0
EPIDIDYMIDES	# EX	10	0	0	10
Hypospermia		4 40.0	0 0.0	0 0.0	2 20.0
SEMINAL VESICLE	# EX	10	0	0	10
SKIN	# EX	10	0	0	10
Fibroma		0 0.0	0 0.0	0 0.0	1 10.0
PREPUTIAL GLAND	# EX	10	0	1	10
Carcinoma		0 0.0	0 0.0	1 100.0	0 0.0
Inflammation, Chronic/Active		2 20.0	0 0.0	0 0.0	0 0.0
Inflammation, Suppurative		5 50.0	0 0.0	0 0.0	2 20.0
Lymphocytic Infiltrates		7 70.0	0 0.0	0 0.0	8 80.0
Fibrosis		1 10.0	0 0.0	0 0.0	1 10.0
EYES	# EX	10	0	0	10
Microgranuloma, Cornea		4 40.0	0 0.0	0 0.0	0 0.0
HARDERIAN GLAND	# EX	10	0	0	10
Lymphocytic Infiltrates		3 30.0	0 0.0	0 0.0	2 20.0
FEMUR/STERNUM	# EX	10	0	0	10
NASAL	# EX	10	0	0	10
Inflammation, Chronic/Active		2 20.0	0 0.0	0 0.0	0 0.0
Inflammation, Suppurative		4 40.0	0 0.0	0 0.0	3 30.0

Incidence Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

PROJECT SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

INCIDENCE OF NEOPLASTIC and NON-NEOPLASTIC MICROSCOPIC FINDINGS

GROUP:		5	6	7	8
NUMBER OF ANIMALS:		10	10	10	10
		# %	# %	# %	# %
NASAL	# EX	10	0	0	10
Hyperplasia, Epithelial		6 60.0	0 0.0	0 0.0	3 30.0
Necrosis, Epithelial		5 50.0	0 0.0	0 0.0	3 30.0
Squamous Metaplasia		2 20.0	0 0.0	0 0.0	1 10.0
MAMMARY GLAND	# EX	9	0	0	9
Galactocele		1 11.0	0 0.0	0 0.0	0 0.0
AORTA	# EX	10	0	0	10

Incidence Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

SEVERITY SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
BRAIN	# EX 10	0	0	10
SCIATIC NERVE	# EX 10	0	0	10
SPINAL CORD	# EX 10	0	0	10
SALIVARY GLAND	# EX 10	0	0	10
PANCREAS	# EX 10	0	0	10
Degeneration, Acinar	3 0.30	0 0.00	0 0.00	1 0.10
Lymphocytic Infiltrates	1 0.10	0 0.00	0 0.00	0 0.00
MANDIBULAR LYMPH NODE	# EX 10	0	0	10
Hemorrhage	2 0.30	0 0.00	0 0.00	2 0.30
Pigmentation, NOS	1 0.20	0 0.00	0 0.00	1 0.10
Histiocytosis	1 0.30	0 0.00	0 0.00	0 0.00
ZYMBAL'S GLAND	# EX 10	0	0	5
PITUITARY	# EX 10	1	1	10
Hyperplasia, Chromophobe Cell	0 0.00	1 4.00	0 0.00	2 0.80
ADRENALS	# EX 10	0	0	10
THYROID	# EX 10	0	0	10
PARATHYROID	# EX 10	0	0	9
TRACHEA	# EX 10	0	0	10
ESOPHAGUS	# EX 10	0	0	10

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

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SEVERITY SUMMARY  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:		1	2	3	4
NUMBER OF ANIMALS:		10	10	10	10
		# SEV	# SEV	# SEV	# SEV
THYMUS	# EX	10	0	0	10
Atrophy		10 2.40	0 0.00	0 0.00	10 2.10
Hemorrhage		0 0.00	0 0.00	0 0.00	3 0.40
HEART	# EX	10	0	0	10
Inflammation, Chronic		2 0.20	0 0.00	0 0.00	5 0.50
COLON	# EX	10	0	0	10
JEJUNUM	# EX	10	0	0	10
LIVER	# EX	10	10	10	10
Hyperplasia, Bile Duct		4 0.50	6 0.60	0 0.00	1 0.10
Inflammation, Chronic		9 1.10	5 0.60	8 0.90	6 0.70
Necrosis, Hepatocellular		0 0.00	0 0.00	3 0.30	0 0.00
SPLEEN	# EX	10	10	10	10
Hyperplasia, Erythroid Cell		6 0.90	6 0.70	3 0.50	4 0.50
Pigmentation, NOS		10 2.90	10 2.10	10 1.40	10 1.20
TONGUE	# EX	10	0	0	10
Inflammation, Chronic		1 0.10	0 0.00	0 0.00	1 0.10
SKELETAL MUSCLE	# EX	10	0	0	10
LUNGS	# EX	10	10	10	10
Inflammation, Chronic		2 0.30	4 0.40	8 1.00	8 1.40
Hyperplasia, Alveolar/Bronchiolar		0 0.00	1 0.20	0 0.00	0 0.00
Lymphocytic Infiltrates, Peribronchiolar		10 1.50	10 1.50	10 1.70	10 1.50
KIDNEY	# EX	10	10	10	10
Mineralization, NOS		10 1.50	9 1.50	10 1.20	10 1.30

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Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

SEVERITY SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
KIDNEY	# EX 10	10	10	10
Pigmentation, NOS	10 2.10	10 1.40	9 0.90	8 0.90
Cytoplasmic Droplets	10 2.50	10 1.90	0 0.00	0 0.00
Hyperplasia, Epithelial, Pelvis	0 0.00	0 0.00	0 0.00	2 0.50
Lymphocytic Infiltrates	0 0.00	0 0.00	2 0.20	5 0.70
Regeneration, Tubular	1 0.10	1 0.10	5 0.60	3 0.30
Degeneration, Tubular	5 0.60	8 0.80	5 0.60	3 0.50
Vacuolization, Cytoplasmic	0 0.00	0 0.00	1 0.20	4 0.70
Inflammation, Chronic/Active	0 0.00	0 0.00	0 0.00	2 0.40
URINARY BLADDER	# EX 10	0	0	10
STOMACH	# EX 10	0	0	10
DUODENUM	# EX 10	0	0	10
ILEUM	# EX 10	0	0	10
CECUM	# EX 10	0	0	10
RECTUM	# EX 10	0	0	10
MESENTERIC LYMPH NODE	# EX 10	0	0	10
OVARIES	# EX 10	0	1	10
Pigmentation, NOS	10 1.50	0 0.00	0 0.00	10 1.30
Hyperplasia, Interstitial Cell	9 1.80	0 0.00	0 0.00	7 1.10
Congestion	0 0.00	0 0.00	1 2.00	0 0.00
UTERUS	# EX 10	3	3	10
Dilatation	1 0.40	0 0.00	0 0.00	1 0.10
Dilatation, Bilateral	6 1.80	3 4.00	3 3.33	1 0.20

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
SEVERITY SUMMARY  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: FEMALE

GROUP:	1	2	3	4
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
SKIN	# EX 10	0	0	10
CLITORAL GLAND	# EX 10	0	0	10
Lymphocytic Infiltrates	1 0.10	0 0.00	0 0.00	2 0.30
Inflammation, Suppurative	0 0.00	0 0.00	0 0.00	2 0.40
Hyperplasia, Ductal Epithelium	0 0.00	0 0.00	0 0.00	1 0.20
EYES	# EX 10	2	1	10
Microgranuloma, Cornea	1 0.10	0 0.00	0 0.00	1 0.10
HARDERIAN GLAND	# EX 10	0	0	10
Lymphocytic Infiltrates	5 0.60	0 0.00	0 0.00	4 0.60
FEMUR/STERNUM	# EX 10	0	0	10
Hyperplasia, Erythroid Cell	3 0.30	0 0.00	0 0.00	0 0.00
NASAL	# EX 10	0	0	10
Inflammation, Suppurative	3 0.70	0 0.00	0 0.00	0 0.00
Hyperplasia, Epithelial	2 0.50	0 0.00	0 0.00	0 0.00
Necrosis, Epithelial	3 0.30	0 0.00	0 0.00	0 0.00
MAMMARY GLAND	# EX 10	0	0	10
Alveolar Dilatation	0 0.00	0 0.00	0 0.00	1 0.20
AORTA	# EX 10	0	0	10

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Severity Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

SEVERITY SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	10	10	10	10
	# SEV	# SEV	# SEV	# SEV
BRAIN	# EX 10	0	0	10
SCIATIC NERVE	# EX 10	0	0	10
SPINAL CORD	# EX 10	0	0	10
SALIVARY GLAND	# EX 10	0	0	10
PANCREAS	# EX 10	0	0	10
Degeneration, Acinar	0 0.00	0 0.00	0 0.00	1 0.20
MANDIBULAR LYMPH NODE	# EX 10	1	0	10
Plasmacytosis	1 0.30	0 0.00	0 0.00	1 0.20
Hemorrhage	3 0.40	1 2.00	0 0.00	0 0.00
ZYMBAL'S GLAND	# EX 8	0	0	9
PITUITARY	# EX 10	1	0	10
Hyperplasia, Chromophobe Cell	0 0.00	0 0.00	0 0.00	2 0.50
ADRENALS	# EX 10	0	0	10
THYROID	# EX 10	0	0	10
PARATHYROID	# EX 10	0	0	10
TRACHEA	# EX 10	0	0	10
ESOPHAGUS	# EX 10	0	0	10
THYMUS	# EX 9	0	0	10
Atrophy	8 2.22	0 0.00	0 0.00	10 2.50

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

SEVERITY SUMMARY

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:		5	6	7	8
NUMBER OF ANIMALS:		10	10	10	10
	# SEV	# SEV	# SEV	# SEV	# SEV
HEART	# EX 10	0	0	10	
Inflammation, Chronic	10 1.00	0 0.00	0 0.00	9 1.10	
COLON	# EX 10	0	0	10	
JEJUNUM	# EX 10	0	0	10	
LIVER	# EX 10	10	10	10	
Hyperplasia, Bile Duct	10 1.40	10 1.40	10 2.00	10 1.70	
Inflammation, Chronic	5 0.50	2 0.20	0 0.00	4 0.50	
Inflammation, Chronic/Active	1 0.10	3 0.40	2 0.30	0 0.00	
Inflammation, Subacute	1 0.10	1 0.10	4 0.60	6 0.80	
Necrosis, Hepatocellular	2 0.20	5 0.60	5 0.90	6 1.10	
Spongiosis Hepatitis	0 0.00	0 0.00	1 0.20	0 0.00	
SPLEEN	# EX 10	10	9	10	
Hyperplasia, Erythroid Cell	10 1.30	4 0.50	4 0.44	3 0.30	
Pigmentation, NOS	10 2.20	10 1.00	5 0.56	3 0.30	
Fibrosis	0 0.00	1 0.10	1 0.11	1 0.10	
Hyperplasia, Lymphoid	0 0.00	2 0.30	0 0.00	1 0.10	
TONGUE	# EX 10	0	0	10	
Inflammation, Chronic	1 0.10	0 0.00	0 0.00	0 0.00	
Mineralization, NOS, Endothelial	9 1.20	0 0.00	0 0.00	10 1.40	
SKELETAL MUSCLE	# EX 10	0	0	10	
LUNGS	# EX 10	10	10	10	
Inflammation, Chronic	3 0.60	5 0.70	7 0.70	5 0.60	
Hyperplasia, Alveolar/Bronchiolar	0 0.00	0 0.00	0 0.00	1 0.30	
Lymphocytic Infiltrates, Peribronchiolar	10 1.50	10 1.20	10 1.30	9 1.00	

Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
SEVERITY SUMMARY  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:	5	6	7	8
NUMBER OF ANIMALS:	10	10	10	10
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	# SEV	# SEV	# SEV	# SEV
KIDNEY	# EX 10	10	10	10
Cytoplasmic Droplets	10 2.30	10 2.00	0 0.00	0 0.00
Chronic Progressive Nephropathy	10 2.20	10 2.70	10 2.20	10 1.70
Hyperplasia, Epithelial, Pelvis	1 0.10	0 0.00	0 0.00	0 0.00
URINARY BLADDER	# EX 10	0	0	10
PROSTATE	# EX 10	0	0	10
Inflammation, Suppurative	2 0.40	0 0.00	0 0.00	1 0.10
Hyperplasia, Epithelial	1 0.20	0 0.00	0 0.00	0 0.00
STOMACH	# EX 10	0	0	10
DUODENUM	# EX 10	0	0	10
ILEUM	# EX 10	0	0	10
CECUM	# EX 10	0	0	10
RECTUM	# EX 10	0	0	10
MESENTERIC LYMPH NODE	# EX 10	0	0	10
TESTES	# EX 10	0	0	10
Degeneration, Seminiferous Tubule	6 1.90	0 0.00	0 0.00	2 0.60
Hyperplasia, Interstitial Cell	3 0.40	0 0.00	0 0.00	7 1.10
EPIDIDYIMIDES	# EX 10	0	0	10
Hypospermia	4 1.50	0 0.00	0 0.00	2 0.60
SEMINAL VESICLE	# EX 10	0	0	10

-----  
Severity Calculated by No. of Tissues Scored

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
SEVERITY SUMMARY  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

DAYS ON TEST: ALL

SEX: MALE

GROUP:		5	6	7	8
NUMBER OF ANIMALS:		10	10	10	10
		# SEV	# SEV	# SEV	# SEV
SKIN	# EX	10	0	0	10
PREPUTIAL GLAND	# EX	10	0	1	10
Inflammation, Chronic/Active		2 0.30	0 0.00	0 0.00	0 0.00
Inflammation, Suppurative		5 1.00	0 0.00	0 0.00	2 0.40
Lymphocytic Infiltrates		7 0.90	0 0.00	0 0.00	8 1.30
Fibrosis		1 0.20	0 0.00	0 0.00	1 0.10
EYES	# EX	10	0	0	10
Microgranuloma, Cornea		4 0.40	0 0.00	0 0.00	0 0.00
HARDERIAN GLAND	# EX	10	0	0	10
Lymphocytic Infiltrates		3 0.30	0 0.00	0 0.00	2 0.20
FEMUR/STERNUM	# EX	10	0	0	10
NASAL	# EX	10	0	0	10
Inflammation, Chronic/Active		2 0.40	0 0.00	0 0.00	0 0.00
Inflammation, Suppurative		4 1.40	0 0.00	0 0.00	3 0.90
Hyperplasia, Epithelial		6 1.60	0 0.00	0 0.00	3 0.90
Necrosis, Epithelial		5 1.20	0 0.00	0 0.00	3 0.60
Squamous Metaplasia		2 0.60	0 0.00	0 0.00	1 0.20
MAMMARY GLAND	# EX	9	0	0	9
AORTA	# EX	10	0	0	10

-----  
Severity Calculated by No. of Tissues Scored

(END OF REPORT)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	1-021	1-022	1-023	1-024	1-025	1-026
BRAIN	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N
PANCREAS			N	N		N
Degeneration, Acinar	1	-	-	-	1	-
Lymphocytic Infiltrates	-	1	-	-	-	-
MANDIBULAR LYMPH NODE		N	N	N	N	N
Hemorrhage	1	-	-	-	-	-
Pigmentation, NOS	2	-	-	-	-	-
ZYMBAL'S GLAND	N	N	N	N	N	N
PITUITARY	N	N	N			N
Adenoma, Pars Distalis	-	-	-	-	P	-
Cyst, NOS, Pars Distalis	-	-	-	P	-	-
ADRENALS	N	N	N	N	N	N
THYROID	N	N	N	N	N	N
PARATHYROID	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

-----

ANIMAL ID:	1-021	1-022	1-023	1-024	1-025	1-026
ESOPHAGUS	N	N	N	N	N	N
THYMUS						
Atrophy	2	2	4	2	2	4
HEART	N			N	N	N
Inflammation, Chronic	-	1	1	-	-	-
COLON	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N
LIVER						
Hyperplasia, Bile Duct	-	2	1	-	-	1
Inflammation, Chronic	1	2	1	2	1	1
SPLEEN						
Hyperplasia, Erythroid Cell	-	-	-	2	-	2
Pigmentation, NOS	3	2	3	3	3	3
TONGUE		N	N	N	N	N
Inflammation, Chronic	1	-	-	-	-	-
SKELETAL MUSCLE	N	N	N	N	N	N
LUNGS						
Inflammation, Chronic	-	-	1	2	-	-
Lymphocytic Infiltrates, Peribronchiolar	2	1	2	1	1	2
KIDNEY						
Mineralization, NOS	1	1	2	1	2	1
Pigmentation, NOS	3	2	2	2	2	2

-----

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	1-021	1-022	1-023	1-024	1-025	1-026
KIDNEY						
Cytoplasmic Droplets	2	3	3	3	3	3
Regeneration, Tubular	1	-	-	-	-	-
Degeneration, Tubular	-	-	-	2	1	1
URINARY BLADDER	N	N	N	N	N	N
STOMACH	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N
CECUM	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N	N	N
OVARIES						
Cyst, NOS	P	-	-	-	-	-
Pigmentation, NOS	2	1	1	2	1	2
Hyperplasia, Interstitial Cell	2	2	2	2	2	2
UTERUS						
Dilatation	-	-	-	-	4	-
Dilatation, Bilateral	1	4	2	3	-	4
SKIN	N	N	N	N	N	N
CLITORAL GLAND	N	N	N	N	N	N

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 1
DAYS ON TEST: ALL	SEX: FEMALE

-----

ANIMAL ID:	1-021	1-022	1-023	1-024	1-025	1-026
EYES	N	N	N	N		N
Microgranuloma, Cornea	-	-	-	-	1	-
HARDERIAN GLAND		N		N		N
Lymphocytic Infiltrates	1	-	1	-	1	-
FEMUR/STERNUM	N	N	N		N	
Hyperplasia, Erythroid Cell	-	-	-	1	-	1
NASAL	N	N	N	N		N
Inflammation, Suppurative	-	-	-	-	3	-
Foreign Body, NOS	-	-	-	-	P	-
Hyperplasia, Epithelial	-	-	-	-	3	-
Necrosis, Epithelial	-	-	-	-	1	-
MAMMARY GLAND	N	N	N	N	N	N
AORTA	N	N	N	N	N	N

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

ANIMAL ID:	1-049	1-060	1-067	1-068
BRAIN	N	N	N	N
SCIATIC NERVE	N	N	N	N
SPINAL CORD	N	N	N	N
SALIVARY GLAND	N	N	N	N
PANCREAS		N	N	N
Degeneration, Acinar	1	-	-	-
MANDIBULAR LYMPH NODE	N		N	
Hemorrhage	-	-	-	2
Histiocytosis	-	3	-	-
ZYMBAL'S GLAND	N	N	N	N
PITUITARY		N	N	N
Cyst, NOS, Pars Distalis	P	-	-	-
ADRENALS	N	N	N	N
THYROID	N	N	N	N
PARATHYROID	N	N	N	N
TRACHEA	N	N	N	N
ESOPHAGUS	N	N	N	N
THYMUS				
Atrophy	3	1	2	2

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	1-049	1-060	1-067	1-068
HEART	N	N	N	N
COLON	N	N	N	N
JEJUNUM	N	N	N	N
LIVER				N
Hyperplasia, Bile Duct	1	-	-	-
Inflammation, Chronic	1	1	1	-
SPLEEN				
Hyperplasia, Erythroid Cell	1	1	2	1
Pigmentation, NOS	3	3	3	3
TONGUE	N	N	N	N
SKELETAL MUSCLE	N	N	N	N
LUNGS				
Lymphocytic Infiltrates, Peribronchiolar	1	1	2	2
KIDNEY				
Mineralization, NOS	1	2	2	2
Pigmentation, NOS	2	2	2	2
Cytoplasmic Droplets	2	2	2	2
Degeneration, Tubular	-	1	1	-
URINARY BLADDER	N	N	N	N
STOMACH	N	N	N	N
DUODENUM	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	1-049	1-060	1-067	1-068
ILEUM	N	N	N	N
CECUM	N	N	N	N
RECTUM	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N
OVARIES				
Cyst, NOS	-	-	-	P
Pigmentation, NOS	1	2	2	1
Hyperplasia, Interstitial Cell	-	2	2	2
UTERUS		N	N	N
Dilatation, Bilateral	4	-	-	-
SKIN	N	N	N	N
CLITORAL GLAND	N		N	N
Lymphocytic Infiltrates	-	1	-	-
EYES	N	N	N	N
HARDERIAN GLAND	N	N		
Lymphocytic Infiltrates	-	-	1	2
FEMUR/STERNUM	N	N	N	
Hyperplasia, Erythroid Cell	-	-	-	1
NASAL			N	N
Inflammation, Suppurative	2	2	-	-
Hyperplasia, Epithelial	-	2	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

TABULATED ANIMAL DATA

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 1  
SEX: FEMALE

ANIMAL ID:	1-049	1-060	1-067	1-068
NASAL			N	N
Necrosis, Epithelial	1	1	-	-
MAMMARY GLAND	N	N	N	N
AORTA	N	N	N	N

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	2-096	2-097	2-098	2-099	2-100	2-101
LIVER						
Hyperplasia, Bile Duct	1	-	1	1	1	-
Inflammation, Chronic	-	1	-	-	1	1
Basophilic Focus	-	P	-	-	-	-
SPLEEN						
Hyperplasia, Erythroid Cell	1	1	1	1	1	-
Pigmentation, NOS	2	2	2	2	2	2
LUNGS						
Inflammation, Chronic	-	-	-	-	-	1
Hyperplasia, Alveolar/Bronchiolar	-	-	-	2	-	-
Lymphocytic Infiltrates, Peribronchiolar	1	2	2	2	1	1
KIDNEY						
Mineralization, NOS	2	1	1	2	1	-
Pigmentation, NOS	2	2	1	2	1	1
Cytoplasmic Droplets	2	2	2	2	2	1
Degeneration, Tubular	1	-	1	-	1	1
UTERUS						
Dilatation, Bilateral	-	4	-	-	4	4

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 2
DAYS ON TEST: ALL	SEX: FEMALE

-----

ANIMAL ID:	2-102	2-103	2-110	2-136
PITUITARY				
Hyperplasia, Chromophobe Cell	-	-	4	-
LIVER				
Hyperplasia, Bile Duct	-	-	1	1
Inflammation, Chronic	-	1	-	2
Basophilic Focus	-	-	-	P
SPLEEN				
Hyperplasia, Erythroid Cell	-	-	-	2
Pigmentation, NOS	2	2	3	2
LUNGS				
Inflammation, Chronic	1	1	1	-
Lymphocytic Infiltrates, Peribronchiolar	1	1	2	2
KIDNEY				
Mineralization, NOS	2	2	2	2
Pigmentation, NOS	1	1	2	1
Cytoplasmic Droplets	2	2	2	2
Regeneration, Tubular	-	-	1	-
Degeneration, Tubular	1	1	1	1
EYES				
Cataract	-	-	P	P

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 3
DAYS ON TEST: ALL	SEX: FEMALE

-----

ANIMAL ID:	3-171	3-172	3-173	3-174	3-175	3-176
<b>LIVER</b>						
Inflammation, Chronic	-	1	2	1	-	1
Necrosis, Hepatocellular	1	-	1	-	-	-
Basophilic Focus	-	-	-	-	-	P
<b>SPLEEN</b>						
Hyperplasia, Erythroid Cell	2	1	-	-	-	-
Pigmentation, NOS	2	2	1	1	1	1
<b>LUNGS</b>						
Inflammation, Chronic	1	1	1	-	1	1
Lymphocytic Infiltrates, Peribronchiolar	2	2	1	2	1	2
<b>KIDNEY</b>						
Mineralization, NOS	2	1	1	1	1	1
Pigmentation, NOS	1	1	1	1	-	1
Regeneration, Tubular	1	1	1	-	-	-
Degeneration, Tubular	-	1	-	1	2	-
Vacuolization, Cytoplasmic	-	-	-	-	2	-
<b>UTERUS</b>						
Dilatation, Bilateral	-	4	-	3	-	3
Endometrial Stromal Polyp	-	-	-	-	-	P

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 3
DAYS ON TEST: ALL	SEX: FEMALE

-----

ANIMAL ID:	3-177	3-178	3-179	3-189
PITUITARY				
Adenoma, Pars Distalis	-	P	-	-
LIVER				
Inflammation, Chronic	1	1	1	1
Necrosis, Hepatocellular	-	-	1	-
Basophilic Focus	-	-	-	P
SPLEEN				
Hyperplasia, Erythroid Cell	-	-	2	-
Pigmentation, NOS	1	1	2	2
LUNGS				
Inflammation, Chronic	1	2	2	-
Lymphocytic Infiltrates, Peribronchiolar	1	2	2	2
KIDNEY				
Mineralization, NOS	1	1	2	1
Pigmentation, NOS	1	1	1	1
Lymphocytic Infiltrates	1	-	-	1
Regeneration, Tubular	-	-	1	2
Degeneration, Tubular	-	1	-	1
OVARIES				
Congestion	-	-	-	2
EYES				
Cataract	-	-	-	P

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	4-246	4-247	4-248	4-249	4-250	4-251
BRAIN	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N
PANCREAS	N	N	N		N	N
Degeneration, Acinar	-	-	-	1	-	-
MANDIBULAR LYMPH NODE		N	N	N	N	N
Hemorrhage	2	-	-	-	-	-
ZYMBAL'S GLAND	U	N	N	N	N	U
PITUITARY	N				N	N
Adenoma, Pars Distalis	-	P	-	-	-	-
Hyperplasia, Chromophobe Cell	-	-	4	4	-	-
ADRENALS	N	N	N	N	N	N
THYROID	N	N	N	N	N	N
PARATHYROID	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N
THYMUS						
Atrophy	2	2	2	2	2	2

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 4
DAYS ON TEST: ALL	SEX: FEMALE

-----

ANIMAL ID:	4-246	4-247	4-248	4-249	4-250	4-251
THYMUS						
Hemorrhage	-	2	-	1	-	1
HEART						
Inflammation, Chronic	N	N	-	1	N	1
COLON						
	N	N	N	N	N	N
JEJUNUM						
	N	N	N	N	N	N
LIVER						
Hyperplasia, Bile Duct	-	N	-	1	-	-
Inflammation, Chronic	1	-	2	-	1	1
Basophilic Focus	-	-	-	-	-	P
SPLEEN						
Hyperplasia, Erythroid Cell	-	-	1	-	2	1
Pigmentation, NOS	1	1	2	1	2	1
TONGUE						
Inflammation, Chronic	N	N	N	N	N	1
SKELETAL MUSCLE						
	N	N	N	N	N	N
LUNGS						
Inflammation, Chronic	2	1	-	2	2	2
Lymphocytic Infiltrates, Peribronchiolar	2	2	2	2	1	1
KIDNEY						
Mineralization, NOS	2	1	2	2	1	1
Pigmentation, NOS	1	1	1	2	-	1
Lymphocytic Infiltrates	-	-	1	1	-	-

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	4-246	4-247	4-248	4-249	4-250	4-251
KIDNEY						
Regeneration, Tubular	-	-	-	-	1	-
Degeneration, Tubular	2	-	-	-	-	-
Vacuolization, Cytoplasmic	2	2	2	-	1	-
URINARY BLADDER	N	N	N	N	N	N
STOMACH	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N
CECUM	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N	N	N
OVARIES						
Pigmentation, NOS	1	2	2	1	1	1
Hyperplasia, Interstitial Cell	1	2	2	1	-	1
UTERUS	N	N	N	N		N
Dilatation, Bilateral	-	-	-	-	2	-
SKIN	N	N	N	N	N	N
CLITORAL GLAND	N	N	N	N		N
Inflammation, Suppurative	-	-	-	-	2	-
Hyperplasia, Ductal Epithelium	-	-	-	-	2	-

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

TABULATED ANIMAL DATA

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 4  
SEX: FEMALE

ANIMAL ID:	4-246	4-247	4-248	4-249	4-250	4-251
EYES	N	N	N	N	N	N
HARDERIAN GLAND	N	N			N	N
Lymphocytic Infiltrates	-	-	2	2	-	-
FEMUR/STERNUM	N	N	N	N	N	N
NASAL	N	N	N	N	N	N
MAMMARY GLAND	N	N	N		N	N
Alveolar Dilatation	-	-	-	2	-	-
AORTA	N	N	N	N	N	N

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	4-252	4-253	4-254	4-276
BRAIN	N	N	N	N
SCIATIC NERVE	N	N	N	N
SPINAL CORD	N	N	N	N
SALIVARY GLAND	N	N	N	N
PANCREAS	N	N	N	N
MANDIBULAR LYMPH NODE	N		N	N
Hemorrhage	-	1	-	-
Pigmentation, NOS	-	1	-	-
ZYMBAL'S GLAND	U	N	U	U
PITUITARY	N	N	N	N
ADRENALS	N	N	N	N
THYROID	N	N	N	N
PARATHYROID	U	N	N	N
TRACHEA	N	N	N	N
ESOPHAGUS	N	N	N	N
THYMUS				
Atrophy	2	3	2	2
HEART	N			N

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	4-252	4-253	4-254	4-276
HEART	N			N
Inflammation, Chronic	-	1	1	-
COLON	N	N	N	N
JEJUNUM	N	N	N	N
LIVER	N			
Inflammation, Chronic	-	-	1	1
Basophilic Focus	-	P	-	-
SPLEEN				
Hyperplasia, Erythroid Cell	-	-	1	-
Pigmentation, NOS	1	1	1	1
TONGUE	N	N	N	N
SKELETAL MUSCLE	N	N	N	N
LUNGS				
Inflammation, Chronic	1	2	2	-
Lymphocytic Infiltrates, Peribronchiolar	1	1	2	1
KIDNEY				
Mineralization, NOS	1	1	1	1
Pigmentation, NOS	1	1	1	-
Hyperplasia, Epithelial, Pelvis	-	-	3	2
Lymphocytic Infiltrates	1	-	2	2
Regeneration, Tubular	-	1	-	1
Degeneration, Tubular	-	1	-	2
Inflammation, Chronic/Active	-	-	2	2

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE  
-----

ANIMAL ID:	4-252	4-253	4-254	4-276
URINARY BLADDER	N	N	N	N
STOMACH	N	N	N	N
DUODENUM	N	N	N	N
ILEUM	N	N	N	N
CECUM	N	N	N	N
RECTUM	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N
OVARIES				
Pigmentation, NOS	1	2	1	1
Hyperplasia, Interstitial Cell	2	2	-	-
UTERUS	N		N	N
Dilatation	-	1	-	-
SKIN	N	N	N	N
CLITORAL GLAND	N	N		
Lymphocytic Infiltrates	-	-	2	1
Inflammation, Suppurative	-	-	2	-
EYES	N	N		N
Microgranuloma, Cornea	-	-	1	-
HARDERIAN GLAND	N		N	
Lymphocytic Infiltrates	-	1	-	1

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

TABULATED ANIMAL DATA

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE

ANIMAL ID:	4-252	4-253	4-254	4-276
FEMUR/STERNUM	N	N	N	N
NASAL	N	N	N	N
MAMMARY GLAND	N	N	N	N
AORTA	N	N	N	N

See Reports Code Table for Symbol Definitions

(END OF REPORT)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	5-306	5-307	5-308	5-309	5-310	5-311
BRAIN	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N
PANCREAS	N	N	N	N	N	N
MANDIBULAR LYMPH NODE	N	N		N		N
Plasmacytosis	-	-	-	-	3	-
Hemorrhage	-	-	1	-	-	-
ZYMBAL'S GLAND	N	N	N	U	N	N
PITUITARY	N	N	N	N	N	N
ADRENALS	N	N	N	N	N	N
THYROID	N		N	N	N	N
Cyst, NOS	-	P	-	-	-	-
PARATHYROID	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N
THYMUS		N				U

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	5-306	5-307	5-308	5-309	5-310	5-311
THYMUS		N				U
Atrophy	2	-	4	2	2	-
HEART						
Inflammation, Chronic	1	1	1	1	1	1
COLON	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N
LIVER						
Hyperplasia, Bile Duct	1	1	2	1	1	1
Inflammation, Chronic	1	1	-	-	-	-
Inflammation, Chronic/Active	-	-	-	-	-	1
Necrosis, Hepatocellular	-	-	-	-	-	1
SPLEEN						
Hyperplasia, Erythroid Cell	1	1	1	1	2	1
Pigmentation, NOS	2	3	2	2	2	2
TONGUE	N					
Mineralization, NOS, Endothelial	-	1	1	2	1	1
SKELETAL MUSCLE	N	N	N	N	N	N
LUNGS						
Inflammation, Chronic	-	-	-	-	2	2
Lymphocytic Infiltrates, Peribronchiolar	2	1	1	1	1	2
KIDNEY						
Cytoplasmic Droplets	2	2	2	2	2	2
Chronic Progressive Nephropathy	2	2	2	2	3	2

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 5
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	5-306	5-307	5-308	5-309	5-310	5-311
KIDNEY						
Hyperplasia, Epithelial, Pelvis	-	-	-	1	-	-
URINARY BLADDER						
Calculus, NOS	P	-	-	-	-	-
PROSTATE						
Inflammation, Suppurative	-	-	-	-	-	2
Hyperplasia, Epithelial	-	-	-	-	-	2
STOMACH						
	N	N	N	N	N	N
DUODENUM						
	N	N	N	N	N	N
ILEUM						
	N	N	N	N	N	N
CECUM						
	N	N	N	N	N	N
RECTUM						
	N	N	N	N	N	N
MESENTERIC LYMPH NODE						
	N	N	N	N	N	N
TESTES						
Degeneration, Seminiferous Tubule	4	-	4	3	1	-
Hyperplasia, Interstitial Cell	-	2	-	-	-	1
EPIDIDYIMIDES						
Hypospermia	4	-	4	-	-	-
SEMINAL VESICLE						
	N	N	N	N	N	N
SKIN						
	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	5-306	5-307	5-308	5-309	5-310	5-311
PREPUTIAL GLAND		N				
Inflammation, Chronic/Active	1	-	-	2	-	-
Inflammation, Suppurative	-	-	3	-	2	2
Lymphocytic Infiltrates	-	-	1	1	2	1
EYES		N		N		N
Microgranuloma, Cornea	1	-	1	-	1	-
HARDERIAN GLAND	N	N	N		N	
Lymphocytic Infiltrates	-	-	-	1	-	1
FEMUR/STERNUM	N	N	N	N	N	N
NASAL						N
Inflammation, Chronic/Active	-	-	2	-	2	-
Inflammation, Suppurative	3	4	-	4	-	-
Hyperplasia, Epithelial	3	3	2	3	2	-
Necrosis, Epithelial	3	3	-	2	2	-
Squamous Metaplasia	3	3	-	-	-	-
MAMMARY GLAND	N	N	N	N	N	
Galactoceles	-	-	-	-	-	P
AORTA	N	N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE  
-----

ANIMAL ID:	5-312	5-313	5-314	5-326
BRAIN	N	N	N	N
SCIATIC NERVE	N	N	N	N
SPINAL CORD	N	N	N	N
SALIVARY GLAND	N	N	N	N
PANCREAS	N	N	N	N
MANDIBULAR LYMPH NODE	N			N
Hemorrhage	-	2	1	-
ZYMBAL'S GLAND	N	N	U	N
PITUITARY	N	N	N	N
ADRENALS	N	N	N	N
THYROID	N	N	N	N
PARATHYROID	N	N	N	N
TRACHEA	N	N	N	N
ESOPHAGUS	N	N	N	N
THYMUS				
Atrophy	2	3	2	3
HEART				
Inflammation, Chronic	1	1	1	1

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study		STUDY NUMBER: 93-004			
FATE: ALL		GROUP: 5			
DAYS ON TEST: ALL		SEX: MALE			
-----					
ANIMAL ID:		5-312	5-313	5-314	5-326
COLON		N	N	N	N
JEJUNUM		N	N	N	N
LIVER					
Hyperplasia, Bile Duct		2	1	2	2
Inflammation, Chronic		1	1	-	1
Inflammation, Subacute		-	-	1	-
Necrosis, Hepatocellular		-	-	1	-
Eosinophilic Focus		-	-	P	-
SPLEEN					
Hyperplasia, Erythroid Cell		1	1	2	2
Pigmentation, NOS		2	3	2	2
TONGUE					
Inflammation, Chronic		1	-	-	-
Mineralization, NOS, Endothelial		1	2	2	1
SKELETAL MUSCLE		N	N	N	N
LUNGS					
Inflammation, Chronic		2	-	-	-
Lymphocytic Infiltrates, Peribronchiolar		2	2	1	2
KIDNEY					
Cytoplasmic Droplets		3	3	3	2
Chronic Progressive Nephropathy		3	2	2	2
URINARY BLADDER		N	N	N	N
PROSTATE		N	N		N

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 5

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	5-312	5-313	5-314	5-326
PROSTATE	N	N		N
Inflammation, Suppurative	-	-	2	-
STOMACH	N	N	N	N
DUODENUM	N	N	N	N
ILEUM	N	N	N	N
CECUM	N	N	N	N
RECTUM	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N
TESTES			N	
Degeneration, Seminiferous Tubule	-	3	-	4
Hyperplasia, Interstitial Cell	1	-	-	-
EPIDIDYMIDES	N		N	
Hypospermia	-	3	-	4
SEMINAL VESICLE	N	N	N	N
SKIN	N	N	N	N
PREPUTIAL GLAND	N			
Inflammation, Suppurative	-	-	2	1
Lymphocytic Infiltrates	-	1	2	1
Fibrosis	-	-	-	2
EYES		N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

TABULATED ANIMAL DATA

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

ANIMAL ID:	5-312	5-313	5-314	5-326
EYES		N	N	N
Microgranuloma, Cornea	1	-	-	-
HARDERIAN GLAND	N	N	N	
Lymphocytic Infiltrates	-	-	-	1
FEMUR/STERNUM	N	N	N	N
NASAL	N		N	N
Inflammation, Suppurative	-	3	-	-
Hyperplasia, Epithelial	-	3	-	-
Necrosis, Epithelial	-	2	-	-
MAMMARY GLAND	N	N	U	N
AORTA	N	N	N	N

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 6

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	6-381	6-382	6-383	6-384	6-385	6-386
MANDIBULAR LYMPH NODE						
Hemorrhage	2	-	-	-	-	-
LIVER						
Hyperplasia, Bile Duct	2	2	1	1	1	1
Inflammation, Chronic	-	-	1	-	1	-
Inflammation, Chronic/Active	2	-	-	1	-	-
Necrosis, Hepatocellular	2	1	-	1	-	-
SPLEEN						
Hyperplasia, Erythroid Cell	1	-	-	-	1	-
Pigmentation, NOS	1	1	1	1	1	1
LUNGS						
Inflammation, Chronic	1	-	1	1	-	-
Lymphocytic Infiltrates, Peribronchiolar	1	1	1	1	1	1
KIDNEY						
Cytoplasmic Droplets	2	2	2	2	2	2
Chronic Progressive Nephropathy	3	3	3	3	2	3

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

TABULATED ANIMAL DATA

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

ANIMAL ID:	6-387	6-388	6-389	6-390
PITUITARY				
Adenoma, Pars Distalis	-	P	-	-
LIVER				
Hyperplasia, Bile Duct	2	1	2	1
Inflammation, Chronic/Active	-	-	-	1
Inflammation, Subacute	-	-	1	-
Necrosis, Hepatocellular	-	-	1	1
SPLEEN				
Hyperplasia, Erythroid Cell	2	-	-	1
Pigmentation, NOS	1	1	1	1
Fibrosis	1	-	-	-
Hyperplasia, Lymphoid	-	2	-	1
LUNGS				
Inflammation, Chronic	2	-	-	2
Lymphocytic Infiltrates, Peribronchiolar	2	1	2	1
KIDNEY				
Cytoplasmic Droplets	2	2	2	2
Chronic Progressive Nephropathy	2	3	2	3

See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	7-456	7-457	7-458	7-459	7-460	7-461
LIVER						
Hyperplasia, Bile Duct	2	2	2	2	2	2
Inflammation, Chronic/Active	2	-	-	-	-	-
Inflammation, Subacute	-	-	-	-	-	2
Necrosis, Hepatocellular	2	-	-	-	-	2
Spongiosis Hepatitis	-	-	2	-	-	-
SPLEEN						N
Hyperplasia, Erythroid Cell	1	-	1	-	-	-
Pigmentation, NOS	1	-	1	1	1	-
LUNGS						
Inflammation, Chronic	1	-	-	-	1	1
Lymphocytic Infiltrates, Peribronchiolar	1	2	2	1	2	1
KIDNEY						
Chronic Progressive Nephropathy	3	2	2	2	2	2

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	7-462	7-463	7-464	7-504
LIVER				
Hyperplasia, Bile Duct	2	2	2	2
Inflammation, Chronic/Active	-	-	-	1
Inflammation, Subacute	2	-	1	1
Necrosis, Hepatocellular	2	-	1	2
SPLEEN				
Hyperplasia, Erythroid Cell	1	1	-	-
Pigmentation, NOS	-	1	-	-
Fibrosis	1	-	-	-
LUNGS				
Inflammation, Chronic	1	1	1	1
Lymphocytic Infiltrates, Peribronchiolar	1	1	1	1
KIDNEY				
Chronic Progressive Nephropathy	2	2	2	3
PREPUTIAL GLAND				
Carcinoma	-	P	-	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	8-531	8-532	8-533	8-534	8-535	8-536
BRAIN	N	N	N	N	N	N
SCIATIC NERVE	N	N	N	N	N	N
SPINAL CORD	N	N	N	N	N	N
SALIVARY GLAND	N	N	N	N	N	N
PANCREAS	N	N	N	N	N	N
MANDIBULAR LYMPH NODE	N	N	N	N	N	N
ZYMBAL'S GLAND	U	N	N	N	N	N
PITUITARY	N	N		N	N	N
Hyperplasia, Chromophobe Cell	-	-	3	-	-	-
ADRENALS	N	N	N	N	N	N
THYROID	N	N	N	N	N	N
PARATHYROID	N	N	N	N	N	N
TRACHEA	N	N	N	N	N	N
ESOPHAGUS	N	N	N	N	N	N
THYMUS						
Atrophy	3	2	3	2	3	2
HEART						N
Inflammation, Chronic	1	1	1	1	1	-

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 8
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	8-531	8-532	8-533	8-534	8-535	8-536
COLON	N	N	N	N	N	N
JEJUNUM	N	N	N	N	N	N
LIVER						
Hyperplasia, Bile Duct	1	2	2	2	2	1
Inflammation, Chronic	1	-	1	-	-	-
Inflammation, Subacute	-	1	-	2	2	1
Necrosis, Hepatocellular	-	2	-	2	2	2
Basophilic Focus	P	-	-	-	-	-
SPLEEN	N			N	N	N
Hyperplasia, Erythroid Cell	-	1	-	-	-	-
Pigmentation, NOS	-	-	1	-	-	-
Fibrosis	-	1	-	-	-	-
TONGUE						
Mineralization, NOS, Endothelial	1	1	2	1	1	1
SKELETAL MUSCLE	N	N	N	N	N	N
LUNGS		N				
Inflammation, Chronic	-	-	1	-	-	1
Lymphocytic Infiltrates, Peribronchiolar	1	-	2	1	1	1
KIDNEY						
Chronic Progressive Nephropathy	1	2	2	2	2	2
URINARY BLADDER	N				N	N
Calculus, NOS	-	P	P	P	-	-
PROSTATE		N	N	N	N	N

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See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	8-531	8-532	8-533	8-534	8-535	8-536
PROSTATE		N	N	N	N	N
Inflammation, Suppurative	1	-	-	-	-	-
STOMACH	N	N	N	N	N	N
DUODENUM	N	N	N	N	N	N
ILEUM	N	N	N	N	N	N
CECUM	N	N	N	N	N	N
RECTUM	N	N	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N	N	N
TESTES	N					
Mesothelioma, NOS	-	P	-	-	-	-
Degeneration, Seminiferous Tubule	-	3	-	-	-	3
Hyperplasia, Interstitial Cell	-	2	1	2	1	-
EPIDIDYIMIDES	N		N	N	N	
Hypospermia	-	3	-	-	-	3
SEMINAL VESICLE	N	N	N	N	N	N
SKIN	N	N	N	N	N	N
PREPUTIAL GLAND				N		N
Inflammation, Suppurative	-	-	-	-	2	-
Lymphocytic Infiltrates	1	2	2	-	3	-
EYES	N	N	N	N	N	N

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	8-531	8-532	8-533	8-534	8-535	8-536
HARDERIAN GLAND		N	N	N	N	N
Lymphocytic Infiltrates	1	-	-	-	-	-
FEMUR/STERNUM	N	N	N	N	N	N
NASAL		N		N	N	N
Inflammation, Suppurative	3	-	3	-	-	-
Hyperplasia, Epithelial	3	-	3	-	-	-
Necrosis, Epithelial	2	-	2	-	-	-
MAMMARY GLAND	N	N	N	N	N	U
AORTA	N	N	N	N	N	N

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE  
-----

ANIMAL ID:	8-537	8-538	8-539	8-540
BRAIN	N	N	N	N
SCIATIC NERVE	N	N	N	N
SPINAL CORD	N	N	N	N
SALIVARY GLAND	N	N	N	N
PANCREAS	N	N	N	
Degeneration, Acinar	-	-	-	2
MANDIBULAR LYMPH NODE	N	N	N	
Plasmacytosis	-	-	-	2
ZYMBAL'S GLAND	N	N	N	N
PITUITARY	N		N	N
Hyperplasia, Chromophobe Cell	-	2	-	-
Cyst, NOS, Pars Distalis	-	P	-	-
ADRENALS	N	N	N	N
THYROID	N	N	N	N
PARATHYROID	N	N	N	N
TRACHEA	N	N	N	N
ESOPHAGUS	N	N	N	N
THYMUS				
Atrophy	2	3	3	2

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study	STUDY NUMBER: 93-004
FATE: ALL	GROUP: 8
DAYS ON TEST: ALL	SEX: MALE

-----

ANIMAL ID:	8-537	8-538	8-539	8-540
HEART				
Inflammation, Chronic	2	1	2	1
COLON				
	N	N	N	N
JEJUNUM				
	N	N	N	N
LIVER				
Hyperplasia, Bile Duct	1	2	2	2
Inflammation, Chronic	2	-	1	-
Inflammation, Subacute	-	1	-	1
Necrosis, Hepatocellular	-	2	-	1
Basophilic Focus	-	-	-	P
SPLEEN				
Hyperplasia, Erythroid Cell	-	-	1	1
Pigmentation, NOS	1	-	1	-
Hyperplasia, Lymphoid	-	1	-	-
TONGUE				
Mineralization, NOS, Endothelial	1	2	2	2
SKELETAL MUSCLE				
	N	N	N	N
LUNGS				
Inflammation, Chronic	2	1	1	-
Hyperplasia, Alveolar/Bronchiolar	3	-	-	-
Lymphocytic Infiltrates, Peribronchiolar	1	1	1	1
KIDNEY				
Chronic Progressive Nephropathy	2	2	1	1

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
TABULATED ANIMAL DATA  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE  
-----

ANIMAL ID:	8-537	8-538	8-539	8-540
URINARY BLADDER	N	N	N	N
PROSTATE	N	N	N	N
STOMACH	N	N	N	N
DUODENUM	N	N	N	N
ILEUM	N	N	N	N
CECUM	N	N	N	N
RECTUM	N	N	N	N
MESENTERIC LYMPH NODE	N	N	N	N
TESTES				N
Hyperplasia, Interstitial Cell	1	3	1	-
EPIDIDYMIDES	N	N	N	N
SEMINAL VESICLE	N	N	N	N
SKIN	N		N	N
Fibroma	-	P	-	-
PREPUTIAL GLAND				
Inflammation, Suppurative	-	2	-	-
Lymphocytic Infiltrates	1	2	1	1
Fibrosis	-	-	-	1
EYES	N	N	N	N

-----  
See Reports Code Table for Symbol Definitions

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

TABULATED ANIMAL DATA

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

ANIMAL ID:	8-537	8-538	8-539	8-540
HARDERIAN GLAND		N	N	N
Lymphocytic Infiltrates	1	-	-	-
FEMUR/STERNUM	N	N	N	N
NASAL	N	N		N
Inflammation, Suppurative	-	-	3	-
Hyperplasia, Epithelial	-	-	3	-
Necrosis, Epithelial	-	-	2	-
Squamous Metaplasia	-	-	2	-
MAMMARY GLAND	N	N	N	N
AORTA	N	N	N	N

See Reports Code Table for Symbol Definitions

(END OF REPORT)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

CORRELATION OF GROSS & MICRO

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 1-022

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Dilation, 8x8x47mm, 2, Irregular,  
Tan

UTERUS - Dilatation, Bilateral

Animal ID: 1-025

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 2x2mm, 1, Round, Dark Red

PITUITARY - Adenoma, Pars Distalis

Animal ID: 1-026

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

Related Histopathology:

THYMUS - Decrease in size, 10x4x1mm

THYMUS - Atrophy

UTERUS - Bilateral, Enlarged, (Right) 37x8x5mm,  
(Left) 35x6x4mm

UTERUS - Dilatation, Bilateral

Animal ID: 1-049

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Dilated, 33x7x7mm

UTERUS - Dilatation, Bilateral

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

CORRELATION OF GROSS & MICRO

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 1

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 1-068

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

Related Histopathology:

MANDIBULAR LYMPH NODE - Discolored, Red

MANDIBULAR LYMPH NODE - Hemorrhage

OVARIES - Left, Cyst, 10x15x7mm, 1, Irregular, Yellow

OVARIES - Cyst, NOS

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

CORRELATION OF GROSS & MICRO

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 2

DAYS ON TEST: ALL

SEX: FEMALE

Animal ID: 2-097

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Dilated, 35x10x10mm

UTERUS - Dilatation, Bilateral

Animal ID: 2-100

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Dialation, 7x7x40mm, 2, Irregular,  
Tan

UTERUS - Dilatation, Bilateral

Animal ID: 2-101

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Dilatation, 8x8x36mm, 2,  
Irregular, Tan

UTERUS - Dilatation, Bilateral

Animal ID: 2-110

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Enlarged, 4x5x2mm

PITUITARY - Hyperplasia, Chromophobe Cell

EYES - Left, Cataract

EYES - Cataract

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
CORRELATION OF GROSS & MICRO  
-----

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 2  
SEX: FEMALE

-----  
Animal ID: 2-136  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
EYES - Left, Cataract

Related Histopathology:  
EYES - Cataract

-----  
(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

CORRELATION OF GROSS & MICRO

STUDY ID : 1 Year Study

FATE: ALL

DAYS ON TEST: ALL

STUDY NUMBER: 93-004

GROUP: 3

SEX: FEMALE

Animal ID: 3-172

Animal Fate: Terminal Sacrifice

Pathologist: GRO

Days on Test: 366

Reference to Necropsy Record:

UTERUS - Bilateral, Dilatation, 8x8x30mm, 2,  
Irregular, Tan

Related Histopathology:

UTERUS - Dilatation, Bilateral

Animal ID: 3-174

Animal Fate: Terminal Sacrifice

Pathologist: GRO

Days on Test: 366

Reference to Necropsy Record:

UTERUS - Bilateral, Dilatation, (Left) 3.5x.5x.5cm,  
(Right) 3.5x.9x.9cm

Related Histopathology:

UTERUS - Dilatation, Bilateral

Animal ID: 3-176

Animal Fate: Terminal Sacrifice

Pathologist: GRO

Days on Test: 366

Reference to Necropsy Record:

UTERUS - Left, Dilatation, 2x1x1cm

Related Histopathology:

UTERUS - Dilatation, Bilateral; UTERUS - Endometrial  
Stromal Polyp

UTERUS - Right, Dilatation, 1x.5x.5cm

UTERUS - Endometrial Stromal Polyp; UTERUS -  
Dilatation, Bilateral

Animal ID: 3-178

Animal Fate: Terminal Sacrifice

Pathologist: GRO

Days on Test: 366

Reference to Necropsy Record:

PITUITARY - Mass, 5x3x1mm, 1, Irregular, Soft, White/  
Red

Related Histopathology:

PITUITARY - Adenoma, Pars Distalis

(REPORT CONTINUED)



Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
CORRELATION OF GROSS & MICRO  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 3

DAYS ON TEST: ALL

SEX: FEMALE  
-----

Animal ID: 3-189

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366  
-----

Reference to Necropsy Record:

Related Histopathology:

OVARIES - Discolored, Red

OVARIES - Congestion

EYES - Left, Cataract

EYES - Cataract

-----  
(REPORT CONTINUED)  
-----

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
CORRELATION OF GROSS & MICRO  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 4

DAYS ON TEST: ALL

SEX: FEMALE  
-----

Animal ID: 4-247

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366  
-----

Reference to Necropsy Record:

Related Histopathology:

PITUITARY - Mass, 3x2mm, 1, Irregular, Black

PITUITARY - Adenoma, Pars Distalis  
-----

Animal ID: 4-250

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366  
-----

Reference to Necropsy Record:

Related Histopathology:

UTERUS - Bilateral, Dilatation, 7x7x44mm, 2,  
Irregular, Tan

UTERUS - Dilatation, Bilateral  
-----

(END OF REPORT)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

CORRELATION OF GROSS & MICRO

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 5-306  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:

TESTES - Bilateral, Decrease in size, (Right)  
20x10x5mm, (Left) 18x10x5mm, Clear

Related Histopathology:

TESTES - Degeneration, Seminiferous Tubule

Animal ID: 5-308  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:

MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:

MANDIBULAR LYMPH NODE - Hemorrhage

TESTES - Bilateral, Decreased in size, Moderate

TESTES - Degeneration, Seminiferous Tubule

PREPUTIAL GLAND - Right, Discolored, Green

PREPUTIAL GLAND - Inflammation, Suppurative

Animal ID: 5-309  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:

THYMUS - Decrease in size, 7x7x1mm

Related Histopathology:

THYMUS - Atrophy

TESTES - Right, Decrease in size, 18x12x5mm, Clear

TESTES - Degeneration, Seminiferous Tubule

Animal ID: 5-313  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:

MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:

MANDIBULAR LYMPH NODE - Hemorrhage

TESTES - Right, Decreased in size, 11x17x10mm, Fluid  
Filled, Clear

TESTES - Degeneration, Seminiferous Tubule

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

CORRELATION OF GROSS & MICRO

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 5  
SEX: MALE

Animal ID: 5-314  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
LIVER - All Lobes, Mottled

Related Histopathology:  
LIVER - Hyperplasia, Bile Duct; LIVER - Inflammation,  
Subacute; LIVER - Necrosis, Hepatocellular; LIVER -  
Eosinophilic Focus

Animal ID: 5-326  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
TESTES - Right, Decreased in size, 15x9x10mm, Soft,  
Clear

Related Histopathology:  
TESTES - Degeneration, Seminiferous Tubule

TESTES - Left, Decreased in size, 15x10x10mm, Soft,  
Clear

TESTES - Degeneration, Seminiferous Tubule

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

CORRELATION OF GROSS & MICRO

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 6  
SEX: MALE

Animal ID: 6-381  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:  
MANDIBULAR LYMPH NODE - Hemorrhage

Animal ID: 6-388  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
PITUITARY - Mass, 1x.5x.5mm, 1, Red

Related Histopathology:  
PITUITARY - Adenoma, Pars Distalis

Animal ID: 6-389  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
LIVER - All Lobes, Mottled, Tan and Red

Related Histopathology:  
LIVER - Hyperplasia, Bile Duct; LIVER - Inflammation,  
Subacute; LIVER - Necrosis, Hepatocellular

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

CORRELATION OF GROSS & MICRO

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 7

DAYS ON TEST: ALL

SEX: MALE

Animal ID: 7-462

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

LIVER - All Lobes, Discolored, Pale

Related Histopathology:

LIVER - Hyperplasia, Bile Duct; LIVER - Inflammation,  
Subacute; LIVER - Necrosis, Hepatocellular

Animal ID: 7-463

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

PREPUTIAL GLAND - Left, Mass, 25x19x14mm, 1,  
Irregular, Firm, Red

Related Histopathology:

PREPUTIAL GLAND - Carcinoma

Animal ID: 7-464

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366

Reference to Necropsy Record:

LIVER - All Lobes, Mottled

Related Histopathology:

LIVER - Hyperplasia, Bile Duct; LIVER - Inflammation,  
Subacute; LIVER - Necrosis, Hepatocellular

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

CORRELATION OF GROSS & MICRO

STUDY ID : 1 Year Study  
FATE: ALL  
DAYS ON TEST: ALL

STUDY NUMBER: 93-004  
GROUP: 8  
SEX: MALE

Animal ID: 8-531  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
MANDIBULAR LYMPH NODE - Discolored, Red

Related Histopathology:  
MANDIBULAR LYMPH NODE - No Corollary change detected

Animal ID: 8-532  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
TESTES - Masses, <1mm, >5, Round, Granular

Related Histopathology:  
TESTES - Mesothelioma, NOS

Animal ID: 8-536  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
TESTES - Left, Decreased in size, 17x9x9mm, Soft,  
Clear

Related Histopathology:  
TESTES - Degeneration, Seminiferous Tubule

Animal ID: 8-537  
Animal Fate: Terminal Sacrifice

Pathologist: GRO  
Days on Test: 366

Reference to Necropsy Record:  
LUNGS - Left Lobe, Mass, 4x4x.5mm, 1, Hard, Yellow,  
Found at trimming

Related Histopathology:  
LUNGS - Hyperplasia, Alveolar/Bronchiolar

(REPORT CONTINUED)

Pathology Associates, Inc.  
Study No. 93-004  
Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene  
Interim Sacrifice

-----  
CORRELATION OF GROSS & MICRO  
-----

STUDY ID : 1 Year Study

STUDY NUMBER: 93-004

FATE: ALL

GROUP: 8

DAYS ON TEST: ALL

SEX: MALE  
-----

Animal ID: 8-538

Pathologist: GRO

Animal Fate: Terminal Sacrifice

Days on Test: 366  
-----

Reference to Necropsy Record:

SKIN - Mass, 6x5x2mm, 1, Round, Firm, Pink

Related Histopathology:

SKIN - Fibroma

-----  
(END OF REPORT)



FOOD AND WATER  
CONSUMPTION

Food Consumption  
(g/wk)  
Females

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	26.02±1.44	29.64±0.71	33.23±0.88	31.49±0.70
2	74.21±1.73	78.54±1.31	80.41±0.78	81.11±1.05
3	74.88±1.79	81.28±2.42	79.73±1.17	79.43±2.16
4	78.07±2.48	86.54±1.32	85.72±2.09	86.66±2.77
5	77.74±1.77	84.48±2.12	84.44±2.12	83.90±1.74
6	73.84±2.00	84.06±1.99	84.30±3.85	79.51±2.68
7	87.50±2.08	93.90±3.22	94.76±2.48	94.78±1.38
8	61.04±2.15	68.41±2.47	69.55±1.75	70.96±1.42
9	80.29±1.39	86.04±1.96	83.14±2.98	87.75±2.36
10	78.28±1.54	86.14±1.67	89.90±2.25	90.18±2.24
11	54.73±29.26	97.24±2.80	100.92±2.27	100.81±1.46
12	56.96±2.33	63.37±4.06	70.10±1.54	69.31±2.07
14 *	32.13±1.00	35.14±0.91	35.71±0.94	36.21±1.22
15	72.25±2.08	78.97±2.35	82.95±1.86	82.75±1.17
16	75.09±1.23	82.52±2.39	83.87±1.67	86.98±1.36
17	72.36±1.44	79.98±1.67	81.39±2.97	87.96±1.11
18	77.06±1.17	85.18±2.48	87.68±2.01	97.37±1.32
19	74.00±1.46	82.06±1.27	84.98±1.29	89.58±1.93
20	74.57±2.21	78.64±1.73	82.75±2.16	91.99±2.57
21	86.37±2.71	93.75±2.77	100.00±2.30	111.98±3.31
22	64.12±1.43	68.07±1.54	69.81±1.69	79.21±1.39
23	71.65±1.13	78.10±2.18	84.32±3.15	82.49±9.30
24	74.48±1.49	86.18±1.95	85.71±2.77	89.23±2.13
25	77.62±1.78	85.73±1.66	89.29±2.63	97.09±2.05
26	87.93±2.83	100.85±2.07	100.40±2.14	107.62±1.39
27	63.57±1.55	76.74±2.17	76.75±2.32	76.57±2.20

Mean ±Standard Error

\*Data from 3 days

Food Consumption  
(g/wk)  
Females

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
28	78.15±1.59	85.28±2.15	87.71±1.21	93.32±1.37
29	78.24±1.96	87.56±2.41	89.46±2.27	89.28±2.60
30	73.81±1.78	80.62±2.00	84.16±2.04	87.23±1.61
31	81.98±1.80	84.72±2.65	89.96±1.88	89.95±1.83
32	78.10±1.46	88.05±2.03	90.31±1.53	94.30±2.04
33	76.56±0.97	84.41±2.63	83.14±2.71	94.35±2.27
34	80.46±2.03	89.88±3.23	90.94±1.98	96.70±1.65
35	79.38±1.37	85.53±3.52	88.56±1.95	91.76±2.31
36	80.63±1.49	86.44±1.82	91.79±1.32	92.19±2.74
37	78.67±1.91	90.11±2.61	92.51±2.35	91.33±1.03
38	75.86±2.35	84.99±2.19	87.44±1.57	86.77±0.64
39	74.58±2.02	84.69±2.39	86.06±1.29	87.54±2.13
40	75.71±1.84	82.72±2.04	85.41±1.38	89.70±2.10
41	71.81±1.52	82.22±3.21	81.51±2.31	86.45±2.34
42	72.01±2.20	80.22±1.88	84.61±2.01	84.89±2.24
43	72.80±1.16	83.71±2.51	84.58±1.65	87.09±2.39
44	77.59±2.51	83.09±2.34	88.48±2.20	90.74±2.48
45	73.50±1.22	78.13±2.31	84.70±2.33	87.15±0.77
46	73.19±1.36	81.04±2.29	87.24±2.22	89.06±2.02
47	75.26±1.60	84.80±1.92	89.71±2.66	83.75±3.06
48	74.81±2.28	84.91±3.28	87.30±2.54	86.10±1.76
49	71.69±1.04	81.19±2.80	89.49±2.62	87.44±2.06
50	74.45±1.87	83.13±2.90	86.96±1.77	83.06±1.61
51	75.22±1.22	84.65±2.31	89.84±2.08	83.65±1.60
52	74.43±2.20	83.33±1.65	82.91±1.75	84.32±2.66

Mean ±Standard Error

\*Data from 4 days

Food Consumption  
(g/wk)  
Males

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	39.85±1.01	47.69±0.96	51.72±0.66	50.11±1.02
2 **	170.87±7.06	166.74±3.75	172.75±5.25	166.82±11.34
3	112.21±3.29	118.46±1.64	118.50±2.33	116.09±2.96
4	111.20±2.43	122.19±1.99	119.95±3.64	123.65±2.19
5	112.23±3.16	117.09±3.30	122.10±1.31	120.90±3.10
6 *	45.53±5.86	61.59±3.36	61.02±5.19	70.44±9.14
7	103.43±3.55	116.50±1.71	112.04±2.13	117.55±2.59
8	103.35±2.72	111.42±3.34	114.85±1.86	112.34±2.56
9	107.28±2.59	113.51±2.76	112.41±2.41	114.51±2.16
10	109.85±3.35	118.43±1.69	120.03±1.18	123.68±2.49
11	100.10±3.23	115.32±3.65	119.89±4.15	121.42±2.34
12	93.59±2.23	108.76±3.64	115.39±2.87	107.41±2.50
14 *	45.87±1.45	51.22±1.22	54.41±0.78	50.80±1.93
15	105.74±2.23	117.74±3.46	121.55±2.52	114.46±3.55
16	105.92±2.30	105.26±9.74	118.57±2.24	113.14±2.68
17	88.04±2.41	102.07±2.40	106.97±1.98	102.18±2.79
18	110.18±2.89	124.62±3.69	132.08±2.09	125.09±3.34
19	116.83±3.16	137.50±3.36	142.37±2.44	131.39±3.54
20	105.08±2.66	121.95±3.04	128.54±3.21	117.05±2.66
21	109.10±4.04	126.42±3.13	128.69±2.15	122.32±4.78
22	96.57±4.15	115.28±2.94	117.85±2.81	114.55±3.28
23	106.67±2.41	119.55±2.72	116.44±3.26	118.71±3.61
24	108.59±4.37	125.38±2.00	131.26±2.61	125.45±4.72
25	110.74±2.39	128.46±2.65	126.79±1.97	119.17±4.93
26	95.46±7.89	115.23±10.70	118.35±6.19	117.38±4.98
27	113.07±2.79	124.78±2.09	128.90±2.20	122.74±2.83

Mean ±Standard Error

\*Data from 3 days; \*\*Data from 11 days

Food Consumption  
(g/wk)  
Males

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
28	116.40±2.23	131.15±2.69	131.74±2.40	129.08±1.74
29	116.77±3.14	127.23±2.69	126.80±3.83	123.08±4.02
30	111.09±1.96	124.52±2.59	128.54±1.75	126.73±1.62
31	118.76±1.80	123.04±2.23	132.89±3.46	127.62±2.25
32	116.62±2.39	123.14±2.45	127.25±2.59	132.28±2.68
33	116.40±2.43	124.36±2.21	124.69±1.93	124.92±1.94
34	117.35±2.15	126.44±2.28	128.79±2.24	127.56±2.26s
35	113.47±2.94	125.17±2.64	127.68±1.75	127.14±2.22
36	119.35±1.99	135.54±2.73	134.47±1.17	130.69±3.16
37	117.97±2.96	128.32±3.14	132.65±1.44	125.82±2.64
38	120.44±2.11	127.65±1.99	132.38±1.68	124.59±3.59s
39	186.64±7.24	203.45±6.39	206.84±7.15	201.56±6.22
40	171.70±8.24	171.46±7.13	202.17±5.38	169.98±7.67
41	113.75±1.57	121.24±2.46	125.34±1.65	115.36±1.86
42	109.58±1.96	121.92±2.56	124.95±1.50	118.03±1.97
43	111.64±2.41	124.93±2.08	125.45±2.18	120.78±2.26
44 *	54.77±7.10	75.56±5.17	52.50±3.17	69.50±6.44
45	108.67±3.12	123.75±2.74	127.14±2.01	119.17±2.63
46	111.31±2.27	122.69±2.55	129.63±1.58	122.93±1.52
47	116.43±3.25	122.81±3.07	128.17±2.49	123.30±2.23
48	111.39±2.06	123.65±2.79	124.97±2.30	116.53±2.74
49	109.35±2.79	119.94±2.50	123.40±1.00	120.16±2.16
50	110.52±1.62	122.26±3.24	125.02±1.99	119.94±1.70
51	112.96±1.71	123.05±1.96	122.96±2.05	119.96±2.02
52	112.04±1.98	125.81±1.93	121.34±2.51	123.22±2.30

Mean ±Standard Error

\*Data from 4 days

Water Consumption  
(g/wk)  
Females

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	42.88±1.27	43.07±1.30	43.65±1.73	46.60±2.23
2	115.95±3.83	115.35±4.65	111.48±5.10	115.99±2.49
3	120.48±2.78	123.50±4.48	122.41±4.45	113.83±2.41
4	127.14±3.40	126.56±4.48	119.36±2.91	121.80±3.50
5	123.21±3.26	125.92±5.28	116.58±3.40	118.11±3.24
6	130.25±4.36	126.63±4.57	117.61±3.89	120.71±3.38
7	152.24±5.15	143.89±8.08	139.78±4.30	136.26±2.62
8	110.24±3.23	108.92±5.27	101.44±2.84	102.14±2.54
9	133.85±4.24	131.75±5.83	123.63±4.29	127.74±2.04
10	136.77±5.10	135.18±6.43	128.08±3.99	123.46±2.36
11	159.99±17.31	109.78±14.54	145.14±4.95	138.24±2.50
12 **	110.60±4.61	100.77±5.01	98.57±2.95	99.49±1.79
14	136.25±6.67	132.18±6.17	122.07±3.12	121.01±2.61
15	135.91±4.82	139.67±6.19	126.50±3.76	127.92±3.11
16	135.45±5.47	139.42±7.74	129.85±5.14	128.34±2.29
17	143.92±5.40	148.37±8.20	134.70±5.05	137.48±3.15
18	141.85±4.93	143.67±8.52	133.23±4.17	136.09±2.99
19	129.11±5.48	131.44±5.67	124.13±3.32	128.70±3.73
20	159.05±6.87	163.60±8.47	147.32±3.56	149.66±3.07
21	127.93±5.78	130.29±6.29	119.40±3.76	122.07±2.89
22	133.15±6.16	134.89±6.73	126.98±3.47	129.03±3.21
23	139.81±4.61	142.45±7.37	131.19±4.43	131.73±2.70
24	146.94±4.78	148.71±7.48	137.58±3.64	138.15±5.49
25	169.92±5.12	177.51±7.69	159.60±5.04	162.67±4.23
26	131.75±4.12	139.65±6.24	126.16±3.89	126.88±3.05
27	154.13±5.22	155.96±8.49	141.04±3.68	137.32±3.94

Mean ±Standard Error

\*Data from 3 days; \*\*Data from 6 days

Water Consumption  
(g/wk)  
Females

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
28	155.10±4.96	157.69±7.17	147.05±3.99	147.68±4.48
29	165.05±3.51	167.16±9.07	149.54±3.77	149.38±4.94
30	160.70±3.84	159.59±7.76	143.28±3.86	136.69±4.45
31	155.61±5.17	160.43±8.04	144.36±3.53	144.17±2.96
32	156.96±5.34	159.50±7.56	139.35±3.45	138.92±2.79
33	158.42±5.22	163.53±7.82	144.66±4.58	143.91±4.06
34	164.82±4.82	162.55±8.52	148.07±4.20	144.04±3.86
35	164.75±4.33	160.11±10.29	148.98±4.68	142.55±4.10
36	165.97±5.81	165.58±8.47	149.35±4.70	146.30±4.78
37	166.70±5.30	162.06±8.66	150.11±4.76	142.31±3.82
38	160.82±4.69	165.18±8.29	150.54±4.16	143.10±3.55
39	183.11±6.42	183.25±9.24	162.71±3.83	168.78±4.04
40	139.12±4.11	142.60±8.91	129.89±2.53	123.71±2.92
41	159.30±4.32	160.00±9.22	138.75±4.26	143.60±4.73
42	159.52±5.04	152.64±8.27	141.76±3.87	136.07±4.55
43	160.97±4.19	156.59±9.12	143.19±4.94	140.72±4.05
44	183.75±5.17	177.35±10.04	165.84±4.23	162.57±3.65
45	140.81±3.28	137.09±6.47	123.45±3.45	120.63±3.20
46	163.63±4.96	157.22±9.01	145.45±5.01	133.91±3.06
47	159.14±3.57	162.83±9.18	147.37±4.61	138.29±3.69
48	158.51±3.38	161.57±8.93	145.31±4.61	137.15±4.40
49	157.80±7.20	160.35±9.17	151.03±5.06	135.72±4.03
50	166.01±4.59	162.82±8.45	147.03±4.78	135.77±4.55
51	161.92±6.13	160.33±7.69	144.96±5.39	138.23±4.01
52	159.45±4.53	161.87±8.59	146.70±5.11	137.47±4.40

Mean ±Standard Error

\*Data from 4 days

Water Consumption  
(g/wk)  
Males

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
1 *	55.14±1.40	58.22±1.37	66.14±1.46	62.90±1.92
2 **	219.40±6.33	241.12±7.63	273.74±7.69	221.34±7.43
3	147.20±3.13	147.44±2.04	149.74±4.97	142.96±5.86
4	147.72±3.39	148.54±1.71	151.24±2.69	142.36±4.96
5	146.74±4.23	147.80±1.96	144.78±3.10	141.65±4.90
6 *	69.23±5.06	53.69±5.55	19.48±8.94	66.42±6.23
7	147.06±4.57	153.08±2.25	144.62±2.75	144.59±5.02
8	146.46±4.61	143.85±3.02	146.47±2.04	139.12±4.88
9	152.21±3.51	145.32±2.95	144.49±2.44	139.72±4.54
10	157.52±4.13	149.35±4.44	149.09±2.35	148.73±4.94
11	144.76±2.65	144.64±3.27	151.20±2.03	142.53±4.59
12	136.54±3.59	136.36±2.09	142.66±4.87	126.57±4.86
14	156.36±3.95	154.04±3.48	152.75±3.61	140.25±4.79
15	148.92±3.07	147.51±3.09	152.16±3.44	137.68±6.04
16	155.20±3.35	155.24±4.93	157.42±3.72	146.85±6.09
17	162.11±4.82	160.16±4.08	164.76±3.58	149.66±4.61
18	158.70±4.77	159.73±4.08	158.20±3.04	144.39±5.43
19	148.39±4.98	150.03±2.80	153.64±2.94	135.70±4.81
20	183.34±5.56	182.00±3.74	177.27±4.29	165.84±5.07
21	145.57±4.23	139.90±1.62	134.47±2.22	127.32±4.26
22	153.11±2.65	142.55±4.79	139.18±4.13	130.56±4.66
23	164.63±3.88	159.50±3.92	152.26±3.45	142.02±4.88
24	171.26±4.61	167.56±3.27	163.90±3.46	146.83±4.43
25	191.50±4.10	190.48±4.01	176.17±4.05	167.26±5.33
26	156.22±4.07	149.75±1.86	138.22±3.11	130.27±3.43
27	174.66±4.04	162.34±4.32	152.96±4.66	149.19±2.65

Mean ±Standard Error

\*Data from 3 days; \*\*Data from 11 days



Water Consumption  
(g/wk)  
Males

Week	Dose Group (mg TNB/kg diet)			
	300	60	5	0
28	186.04±4.41	168.97±3.23	162.35±4.04	154.75±4.50
29	173.07±4.35	163.80±3.76	154.36±5.46	148.63±3.99
30	187.32±4.62	163.51±2.97	160.70±3.58	151.81±3.52
31	186.74±4.49	161.90±3.08	153.11±4.36	156.34±4.33
32	181.28±5.02	163.67±2.53	148.32±3.70	146.87±3.55
33	184.42±4.73	155.94±2.97	152.10±3.22	144.74±6.52
34	178.56±2.42	160.07±3.54	151.81±4.31	146.22±5.12
35	184.56±3.23	166.19±3.20	157.13±3.20	148.99±3.04
36	186.39±4.64	169.99±2.34	156.19±1.42	153.79±4.45
37	189.04±4.29	168.99±2.49	155.76±2.39	149.71±3.99
38/39	183.96±2.21	167.51±1.40	154.07±1.54	148.33±1.89
40/41	182.28±2.31	165.20±1.68	154.21±1.61	149.03±1.75
42	175.76±2.38	159.96±4.49	149.94±3.64	145.21±3.86
43	177.59±2.45	159.32±1.75	148.68±1.54	144.90±1.75
44	**	**	**	**
45	171.43±3.57	161.30±3.06	147.45±2.44	144.08±3.61
46	176.41±3.48	158.05±2.50	151.18±2.51	142.02±4.27
47	177.53±4.18	157.61±5.50	151.07±1.94	146.76±5.68
48	176.95±4.27	156.43±3.53	139.79±4.21	142.95±4.39
49	177.04±3.38	155.17±2.95	146.20±2.41	145.05±3.92
50	177.94±4.50	156.89±3.23	148.35±3.55	142.90±3.90
51	168.38±2.92	161.10±3.56	137.59±3.15	146.69±5.12
52	173.86±4.16	155.39±4.50	144.50±3.19	140.70±4.53

Mean ±Standard Error

\*Data from 4 days; \*\*Data unavailable

APPENDIX M

PROTOCOL AND  
AMENDMENTS

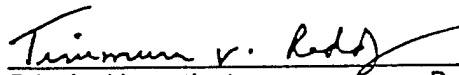
# PROTOCOL

## Two Year Chronic Toxicity Study of 1,3,5-Trinitrobenzene in F344 Rats

This study will be conducted in agreement with Good Laboratory Practice Standards, Environmental Protection Agency, Toxic Substances Control Act (TSCA) 40 CFR Part 792 (Federal Register, Vol 54, No. 158, August 17, 1989, pp. 34034 - 34050). All aspects of the studies will be conducted in accordance with written Standard Operating Procedures (SOP) of the performing unit and all raw data and performance documents will be maintained in agreement with GLP. An administratively separate quality assurance unit (QAU from PAI) will monitor the studies to assure adherence to good laboratory practices and the approved SOPs. Any deviation from the protocol or GLP will be noted in the raw data and reflected in the final report.

Testing Facility  
A.W. Breidenbach Environmental Research Center  
U.S. Environmental Protection Agency  
Cincinnati, OH 45268


Prime Contractor (Sponsor)  
U.S. Army Biomedical Research and  
Development Laboratory, Fort Detrick  
Frederick, Maryland 21701-5010

  
Principal Investigator  
T.V. Reddy, Ph.D.

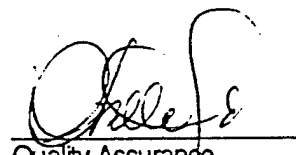
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Date

  
G. Reddy, Ph.D., Sponsor

8-7-93  
Date

  
Project Manager  
G.R. Olson, DVM, Ph.D.  
Pathology Associates, Inc.

8/2/93  
Date

  
Quality Assurance  
W.R. Fox, MA  
Pathology Associates, Inc.

8-2-93  
Date

TWO YEAR CHRONIC TOXICITY STUDY OF  
1,3,5-TRINITROBENZENE  
IN FISCHER (344) RATS

STUDY PROTOCOL

TIRUMURU V. REDDY, Ph.D.  
Principal Investigator

F. Bernard Daniel, Ph.D.  
Co-Principal Investigator

Ecological Monitoring Research Division  
Environmental Monitoring Systems Laboratory - Cincinnati  
U.S. Environmental Protection Agency  
Cincinnati, Ohio 45268

JULY 1, 1993

TITLE: Two year Chronic Toxicity Evaluation of 1,3,5-Trinitrobenzene (TNB), in F344 Rats.

BACKGROUND:

Nitroaromatics, such as 1,3,5-trinitrobenzene (TNB), 1,3-dinitrobenzene (DNB), and N-methyl-N,2,4,6-tetranitroaniline (tetryl), have been detected as environmental contaminants of groundwater and soil near production sites and in some instances at military test grounds. The wastewaters discharged from trinitrotoluene (TNT) manufacturing processes contain a variety of aromatic compounds, including DNB and TNB. TNB is formed during the nitration step of TNT synthesis as a result of oxidation of methyl groups. Although the complete mechanism of TNB formation during TNT photolysis is unknown, Burlinson (1980) suggested that it is produced by decarboxylation of 2,4,6-trinitrobenzaldehyde, a major TNT photoproduct. It is also found in aquatic systems and surface soils as by-products of photolysis of TNT. DNB and TNB are not easily biodegradable, persist in the environment, eventually leach out and contaminate groundwater near waste disposal sites. Tetryl is an explosive that has been in use, largely for military purposes, since 1906. Wastewaters and soil at the original production sites and other plants devoted to munitions assembly, contain large quantities of tetryl. A recent estimate of tetryl in wastewaters generated from the production of tetryl at the Joliet Army Ammunition Plant was about 36 lb/per day of each production line.

Toxicity data on these compounds are limited. The oral LD50 of DNB, TNB and tetryl were 59 mg/kg, 284 mg/kg and greater than 5 g/kg, respectively, in rats for combined sexes. TNB and tetryl were not toxic at 2 g/kg when applied to rabbit skin for 24 hours. However, the dermal LD50 of DNB was 1.99 g/kg for combined sexes of rabbits. None of these compounds produced skin irritation potentials, but positive (DNB) and severe (TNB, tetryl) eye irritation potentials in rabbits. The sensitization tests showed that DNB and tetryl are not skin sensitizers while TNB caused mild allergic reaction in guinea pigs. Some of the toxicological and behavioral effects of DNB are: formation of methemoglobin, testicular degeneration and reproductive failure, and weight loss and anemia in hamsters, rats and mice. Neurological and hematological disorders have also been reported in dogs. DNB is rather toxic to humans; the estimated lethal dose range is 5-50 mg/kg. It is readily absorbed through the skin. Fetal doses (amount and route of administration are not given) of tetryl produced toxic degeneration (necrosis) in the kidneys of dogs and rabbits and liver necrosis in dogs (not in rabbits). Tetryl was observed to be a powerful skin sensitizer in ammunition plant workers. Hardy and Maloof (1950) reported effects from accidental exposure of 11 people to tetryl: 2 died, 1 was disabled and 8 did not detect permanent disability. They also reported irreversible liver damage, dermatitis, and upper respiratory irritation following tetryl exposure. The effects of tetryl exposure include gastrointestinal symptoms and epidermal, respiratory, nervous system, hematopoietic and circulatory injury. Atmospheric concentration of 1.5 mg/m<sup>3</sup> or below did not produce systemic poisoning in persons working with tetryl. DNB, TNB, and tetryl have been shown to be genotoxic in *Salmonella* mutagenesis assay. TNB has been shown to form adducts of blood proteins and tissue DNA in rats.

## PROTOCOL

1. Study. Two year chronic toxicity evaluation of 1,3,5-trinitrobenzene (TNB) in male and female Fischer (344) rats.
2. Study Schedule. Study start date: To be determined.  
Necropsy dates: To be determined.  
Study completion date: To be determined.
3. Purpose. To evaluate chronic toxicity of TNB when administered in the diet for two years. This route was chosen because of the poor solubility of TNB.
4. Study Location. A.W. Breidenbach Environmental Research Center  
U.S. Environmental Protection Agency  
Cincinnati, OH 45268
5. Sponsor and Address. U.S. Army Biomedical Research and Development  
Laboratory, Fort Detrick  
Frederick, Maryland 21701-5010
6. Principle Investigator. T.V. Reddy, Ph.D., Research Chemist  
Environmental Monitoring Systems Laboratory  
U.S. Environmental Protection Agency  
Cincinnati, Ohio 45268
7. Co-Principle Investigator. F. Bernard Daniel, Ph.D.  
Environmental Monitoring Systems Laboratory  
U.S. Environmental Protection Agency  
Cincinnati, Ohio 45268
8. Study Biochemist. Barry Wiechman, MS., Pathology Associates (PAI)
9. Project Manager. G. R. Olson, DVM, Ph.D., Pathology Associates (PAI)
10. Regulatory Compliance. This study will be carried out according to U.S. EPA Health Effects testing guidelines (40 CFR 798) in compliance with GLP (40 CFR 792). Recent recommendations (1992) of the American Association of Clinical Chemistry will be incorporated where applicable.
11. Quality Assurance. All critical phases, data and final report will be audited by the Quality Assurance Unit in accordance with GLP's by Pathology Associates, West Chester, Ohio 45069.

12. Test Material.

1,3,5-Trinitrobenzene (TNB) Powder (CAS #99-35-4) is supplied by U.S. Army Biomedical Research and Development Laboratory, Ft. Detrick, Frederick, Maryland 21702.

13. Experimental Design.

- A. Selection of Dose: Toxikon Corporation, Woburn, MA 01801 has conducted acute toxicity studies on TNB. They administered TNB in corn oil to rats at a single oral (Bolus) dose and observed the clinical signs for 14 days, following dosing. Based on the results they established 298 mg/kg BW, and 275 mg/kg BW, as the LD50 dose for male and female rats, respectively. For combined sexes the reported LD50 dose was 284 mg/kg body weight. Based on the above report, the following 5 concentrations were tested in rats in a 14 day range finding study (120, 80, 40, 20, 5 mg/kg BW). Selection of doses for a 90 day subchronic toxicity study were determined from the 14 day range finding experiment and were as follows: 60, 30 and 5 mg/kg BW. Control rats were fed only powdered chow diet.
- B. Preparation of the Diet: Certified powdered Purina laboratory chow meal 5002 will be purchased from Purina labs and stored at 4°C until use. There were no known contaminants in the certified diet that could affect the outcome of the study. TNB diets are prepared once a week. Just before the diet preparation, TNB is removed from storage shelves, weighed for the desired concentration in the carcinogen room and mixed in the hood with appropriate powdered diet. The three desired doses for the two year study will be selected from the 90 day study and the concentrations are 300, 60 and 5 mg TNB/kg diet. The expected target doses are 30, 6 and 0.5 mg/kg body weight.
- C. Animals: 285 male F344 rats weighing 100-115 gm, and 285 female F344 rats weighing 85-100 gm will be purchased from Charles River Laboratories and held for 1 week quarantine. After evaluation of the serological data and soon after release from quarantine, 5 rats from each sex are sacrificed and used for base line control animals to ensure the animals are healthy and within normal limits for all measurements at the time of arrival and after quarantine. The animals will be identified with electronic implants and housed individually in clear polycarbonate shoe boxes with aspen bedding (San I Chips supplied by P.J. Murphy, Forest Products Corporation, NJ). Shoe boxes and bedding are changed along with food and water (2 times a week). Food and water will be given ad libitum. Water is provided with 16 ounce bottles and stoppers and sipper tubes. At all times the animal rooms are maintained on a 12 hour light/dark cycle at 22-23°C with a relative humidity range of 40-60%.
- D. Randomization: Using computer-generated random numbers animals are assigned to groups. At the time of randomization, the weight variation of the animals of each sex used will not exceed  $\pm 2$  S.D. of the mean weight, and the mean body weights for each group of each sex will not be statistically different. Grouping of animals and sacrifice times are indicated in table 1.

TABLE I: Experimental Design with Fischer (F344) Rats for Chronic 2 Year Bioassay with Sacrifice times at the End of 3, 6, 12 and 24 Months

Sacrifice Time - Months	# of TNB Doses	# of Rats per TNB Dose	Minimum # of Rats Sacrificed per TNB Dose	# of Rats in Control Group	# of Rats Sacrificed in Control Group
3	A	75	10	60	10
	B	75	10		
	C	75	10		
6	A	65	10	50	10
	B	65	10		
	C	65	10		
12	A	55	10	40	10
	B	55	10		
	C	55	10		
24	A	45	45	30	30
	B	45	45		
	C	45	45		

A,B,C Three different doses will be determined from 90 day study. Total number of male rats 285. (225 for test and 60 as control).



E. Justification: Rats historically have been used in safety evaluation studies and are recommended by appropriate regulatory agencies.

F. Analysis of the Diet: The purity of TNB was determined by HPLC and found to be more than 99%. The homogeneity and stability of TNB in the diet will be determined by analyzing the TNB content (by HPLC) in the diet, soon after each weekly diet preparation. Analyses of the TNB-feed samples will be carried out by extracting 20 grams of TNB diet with 100 ml of acetone or methanol for 150 minutes. The mixture is then centrifuged at 10,000 g for 2 minutes with the organic phase being used for quantitation utilizing a Waters 600E chromatography system (Waters, Milford, MA), equipped with a 490E programmable multiwavelength detector, operating at 254 nm. The entire chromatography system is interfaced with a Berthold HPLC computer program Version 1.65 (Berthold Co., Nashua, NH). The TNB is eluted from a Zorbax C-8 column (9.4mm x 25 cm) (MAC-DOD Analytical, Chadds Ford, PA), with a water-methanol gradient at a flow rate of 3 mL/min. Working standards are prepared in Burdick and Jackson HPLC grade high purity methanol (Baxter, Obetz, OH).

G. Observation of Animals:

(1) Clinical

Observations:

Twice daily - mortality and morbidity check.

Once daily - cageside observation for obvious indications of a toxic effect; these effects will be recorded as they are observed.

Data for mortality and morbidity checks and cageside observations will be recorded on the same form.

(2) Physical

Examinations:

At each weighing interval. These observations will include, but not be limited to, changes in: skin and fur; eyes and mucous membranes; respiratory, circulatory, autonomic and central nervous systems; some motor activity and behavior.

(3) Body Weight:

Prior to treatment and weekly, thereafter.

(4) Food Consumption: Weekly.

(5) Water Consumption: Weekly.

(6) Ophthalmoscopic

Examination:

Prior to the start of treatment and at the termination of the study by a board certified veterinarian.

H. Clinical Pathology:

- (1) Frequency: At 3, 6, 12 and 24 months of TNB exposure.
- (2) Number of Animals: Ten animals per dose group of each sex.

I. Tests:

(1) Hematology

Total leukocyte count  
Differential leukocyte count  
Erythrocyte count  
Platelet count  
Hemoglobin concentration  
Hematocrit  
Mean corpuscular volume  
Mean corpuscular hemoglobin  
Mean corpuscular hemoglobin concentration  
Reticulocyte count  
Methemoglobin  
Heinz bodies

(2) Serum Chemistry

Glucose  
Urea nitrogen  
Creatinine  
Total protein  
Albumin  
Globulin  
Calcium  
Phosphorus  
Sodium  
Potassium  
Chloride  
Cholesterol  
Alanine Aminotransferase  
Aspartate Aminotransferase  
Alkaline Phosphatase

(3) Urinalysis

Tests to be conducted will be addressed by an amendment after analysis of clinical pathology and histopathology results at 3 and 6 months.

J. Termination:

(1) Unscheduled Sacrifices and Deaths

Necropsies, by trained personnel using procedures approved by board-certified pathologists, will be conducted on all moribund animals

and on all animals that die.

(2) Sacrifice

After 3, 6, 12 and 24 months of treatment, all surviving animals will be weighed and then fasted for 12 hrs. All rats will be anesthetized with sodium pentobarbital and exsanguinated. Necropsies will be conducted on each animal by trained personnel using procedures approved by board-certified pathologists. Animals will be sacrificed in random order to eliminate bias.

A pathologist will be present for consultation.

K. Postmortem Procedures:

(1) Gross Necropsy

A complete gross examination will be performed on all animals, including those which died during the study or are sacrificed in moribund conditions.

(2) Organ Weights

For each terminally sacrificed animal, the following organs (when present) will be weighed following careful dissection and trimming to remove fat and other contiguous tissue in a uniform manner:

brain	lungs
liver	thymus
spleen	testes with epididymides/ovaries
kidneys	heart
adrenals	

(3) Tissue Preservation

The following tissues (when present) from each animal will be preserved in 10% neutral buffered formalin:

skin	ileum
mandibular and	colon
mesenteric lymph nodes	cecum
mammary glands	rectum
thigh muscle	liver
sciatic nerve	pancreas
sternum with marrow	spleen
femur with marrow	kidneys
larynx	adrenals
thymus	urinary bladder
trachea	seminal vesicles
lungs and bronchi	prostate

heart and aorta  
thyroid  
parathyroids  
esophagus  
stomach  
duodenum  
jejunum  
tongue  
salivary gland  
eyes

testes, including epididymis  
ovaries  
uterus  
nasal cavity and nasal turbinates  
brain  
pituitary  
preputial or clitoral glands  
Zymbal's gland  
spinal cord (3 areas)

L. Histopathology:

The following histopathology will be performed:

- (1) Full histopathology on the organs and tissues listed below of all rats in the control and high dose groups and of all animals that died or were killed during the study.

The tissues to be examined are as follows:

cerebrum	pancreas
cerebellum	cecum
trachea	colon
thyroid	rectum
parathyroid	stomach
esophagus	skeletal muscle
salivary gland	sciatic nerve
harderian gland	tongue
skin	heart
mammary gland	
aorta	nasal region
lung	sternum
thymus	femur
spleen	vertebrae
mesenteric lymph node	spinal cord (3 areas)
liver	adrenals
kidney	pituitary
urinary bladder	eye(s)
duodenum	jejunum
auditory sebaceous gland	
ileum	

MALE

FEMALE

accessory sex glands  
epididymis  
testes

uterus  
ovaries

- (2) All gross lesions in all animals.
- (3) Target organs in all animals

- (4) Lungs, liver and kidneys of all animals.

Note: If excessive early deaths or other problems occur in the high dose group then the next dose level will be examined.

- (5) Following completion of the study, all wet tissues, paraffin blocks and slides will be placed in the EPA storage facility along with all raw data.

M. Final Report:

Two months after the termination of the in-life phase of the study, a draft report which includes the following information (as appropriate) will be prepared and submitted to the sponsor:

- (1) Experimental Design and Methods

- (2) Results

mortality	organ weights and organ/body
clinical observations	weight ratios
body weights	gross pathology
food and water consumption	histopathology
clinical pathology tests	ophthalmology findings

Statistical Evaluation:

SAS® computer software will be used for statistical analysis. Dunnet's t-test will be used for comparing treatment groups.

Kruskal-Wallis rank sums will be used to examine the differences among the treatment groups and Wilcoxon rank sum test will be used to analyze pairwise differences between the control and each dose group.

### Deviations from GLP's and/or Protocol

1. Tukey's test for statistically comparing treatment groups was sometimes used as well as Dunnett's test. This does not effect the quality of the data.
2. The animal room temperature and humidity values varied slightly from the protocol but were within those guidelines recommended by the U.S. Public Health Service (NIH).
3. Analysis for triglycerides was done at the 6, 12 and 24 month sacrifice times. This was added to enhance the data per the sponsor's approval.
4. Three male rats in the 300 mg/kg group were removed from the study at 6 months for biomarker analysis at the request of the sponsor.
5. Tissues from severely autolyzed animals were discarded. This does not effect the integrity of the data.
6. Clinical observations were recorded in the study book on a weekly basis. This does not effect the quality of the data.
7. Kidney sections were also stained for alpha-2 $\mu$ -globulin using immunohistochemical techniques to further characterize the renal droplets.

APPENDIX N  
DISTRIBUTION LIST

## DISTRIBUTION LIST

Commander  
ATTN: MCMR-RMI-S  
U.S. Army Medical Research and Materiel Command  
Fort Detrick, Frederick, MD 21702-5012

Commander/Director  
U.S. Army Corps of Engineers  
Construction Engineering Research Laboratory  
Environmental Division  
P.O. Box 4005  
Champaign, IL 61820

Commandant  
Academy of Health Sciences, U.S. Army  
ATTN: DRXTH-ES  
Aberdeen Proving Ground, MD 21010-5000

Commander  
U.S. Army Center for Health Promotion and Preventive Medicine  
ATTN: Library  
Aberdeen Proving Ground, MD 21020-5000

Commander  
U.S. Army Environmental Center  
ATTN: S-FIM-AEC-TSS (Mr. R. L. Muhly)  
Aberdeen Proving Ground, MD 21010-5401



APPENDIX O

QUALITY ASSURANCE  
STATEMENT

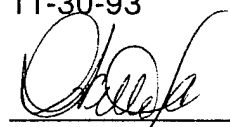
Study No. 93-004

Study Title: Two Year Chronic Toxicity Study of 1,3,5-Trinitrobenzene in F344 Rats

**QUALITY ASSURANCE STATEMENT**

The portions of this toxicology project performed and reported by Pathology Associates International has been inspected and audited by the quality assurance unit as required by the Good Laboratory Practice (GLP) standards promulgated by the U.S. Environmental Protection Agency. Results of these activities indicate that the portions of the study performed and reported by PAI conformed with GLP standards and applicable Standard Operating Procedures. The following table is a record of the inspections/audits performed and reported by the QAU.

<u>Date of Inspection</u>	<u>Phase Inspected</u>	<u>Date Findings Reported to Management and Study Director</u>
09-10-96	Final Report	09-10-96
04-01-96	Draft Report	04-01-96
08-24-93	Randomization	08-24-93
09-29-94	In-Life Data	09-29-94
02-15-94	Weighing	02-22-94
05-16-95	Weighing	05-16-95
11-16-93	Weighing	12-03-93
09-13-94	Weighing	09-14-94
12-09-93	Dose Prep	12-13-93
08-25-93	Dose Prep	08-30-93
11-16-93	Food/Water Consumption	12-13-93
02-15-94	Food/Water Consumption	02-22-94
09-09-93	Food/Water Consumption	09-14-93
09-13-94	Food/Water Consumption	09-14-94
08-27-93	Ophthalmic Exam	08-30-93
09-09-93	Diet Analysis	09-14-93
12-09-93	Diet Analysis	12-13-93
08-31-95	Necropsy	09-06-95
10-03-95	Microtomy	10-05-95
10-27-95	Staining	10-31-95
10-27-95	Coverslipping	10-31-95
04-01-96	Draft Report	04-01-96
08-24-93	Animal Receipt	08-24-93
09-29-93	In-Life Data	10-05-93
09-09-93	In-Life Data	09-14-93
04-08-94	In-Life Data	04-12-94
12-09-93	In-Life Data	12-13-93
04-08-94	Food Consumption	04-12-94
01-13-94	Food Consumption	01-14-94
05-16-95	Food/Water Consumption	05-16-95
03-14-94	Microtomy	03-17-94
03-14-94	Coverslipping	03-17-94
03-23-94	Labeling	03-23-94
04-04-94	Quality Control	04-04-94
11-30-93	Necropsy	12-03-93

  
\_\_\_\_\_  
Willa Fox, MA  
Quality Assurance Unit  
PAI-Cin

9-10-96  
\_\_\_\_\_  
Date